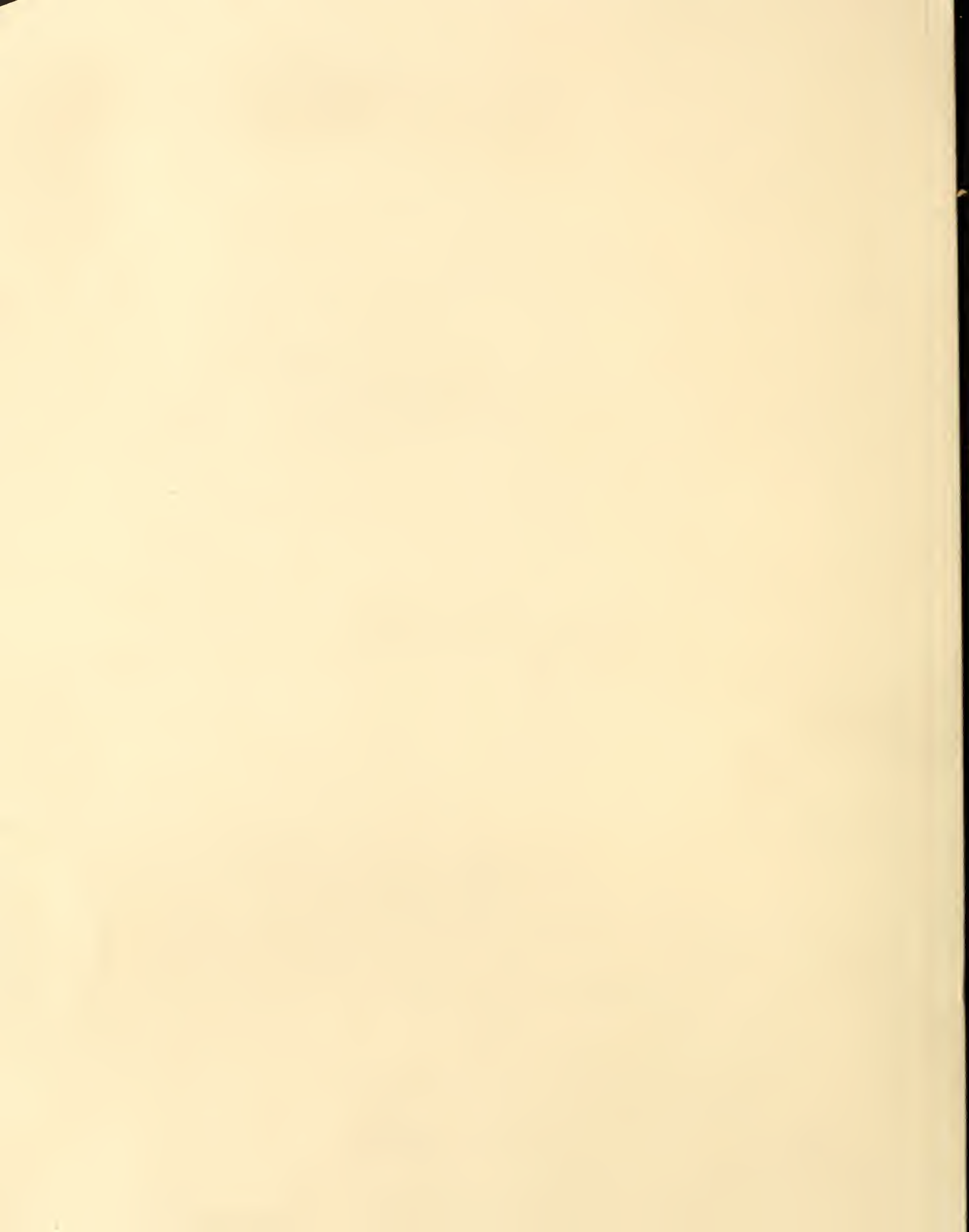


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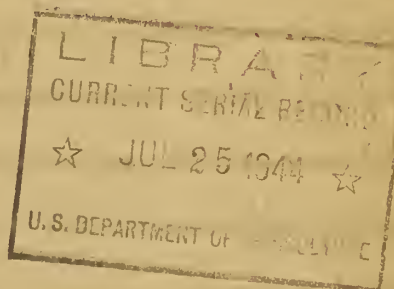
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WAR FOOD ADMINISTRATION  
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CIVILIAN FOOD REQUIREMENTS BRANCH



CIVILIAN FOOD PROGRAM FOR 1944-45  
(Requirements and Requested Allocations  
For Year Beginning July 1, 1944)

Washington 25, D. C.

June 5, 1944

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1/ Prepared under the direction of Norman Leon Gold, William C. Ockey,  
and Arthur E. Browne.



WAR FOOD ADMINISTRATION

FOOD DISTRIBUTION ADMINISTRATION

Washington 25, D. C.

To: Lee Marshall, Director

From: Norman Leon Gold, Chief  
Civilian Food Requirements Branch

Subject: Civilian Food Program for 1944-45

Attached is a copy of the civilian food requirements and requested allocations for the fiscal year beginning July 1, 1944 which has been submitted to Requirements & Allocations Control Branch.

The data for requirements and requested allocations are presented separately for specific food groups. However, taken as a whole, they constitute an integrated civilian food program. Each individual requirement bears an essential relation to the total program.

The program has been directed toward the following objectives:

1. To assure a sufficient supply of nutrients to maintain the civilian population at a high level of health and vigor.
2. To provide a varied and palatable diet within the framework of existing consumption habits.
3. To assure supplies of nutritious, efficiently produced and distributed foods, sometimes at the expense of less nutritious foods and, when necessary, at the expense of the more luxurious nutritious foods.
4. To provide various types and groups of foods in such quantities that reasonably equitable distribution of the foods which are most important from the standpoint of nutrition and dietary habits can be obtained.
5. To release substantial quantities of food for direct and indirect military purposes.



### Methods of Calculation

For each of the food groups and for the more important foods within these groups we have undertaken to indicate the basis for our requirements calculations. The relative importance of food from the standpoint of food habits and nutrition has been shown; historical consumption figures and estimates of demand for the coming year -- the latter supplied for the most part by specialists in the Bureau of Agricultural Economics -- have been presented; and the problems of distributing a short supply have been discussed. These considerations have provided the basis for our requirements calculations.

It has been recognized that there are only two ways of assuring the supply of any food in all markets. One is to ration and the other is to maintain a supply sufficient to meet demand in full at the anticipated price. For highly nutritious, efficiently-produced-and-distributed foods that are important in consumption habits our requirements have been fixed, wherever feasible in the light of the prospective supply situation, at the level of demand. For more luxurious foods that are important nutritionally and in dietary habits, our requirements contemplate the distribution of a short supply by rationing wherever rationing is feasible. Since most of these foods are already rationed, requirements figures have been fixed generally at or near the amount of the current ration; but where rationing is not feasible requirements have been calculated at a figure which will produce a reasonably orderly free market. For foods that are relatively unimportant nutritionally and in consumption habits we have submitted no fixed requirements but have requested an allocation of the residual supply.

### Basic Assumptions

In determining civilian requirements for the year 1944-45 it has been necessary to make certain basic assumptions regarding the continuation of the war. It has been assumed, for example, that the war both in the Pacific and in Europe will continue throughout all or the greater part of the allocation period and that there will be a continued high level of requirements for both direct and indirect military purposes. In view of the expectation of a continued high level of non-civilian requirements, it has been assumed that for the year as a whole it will be necessary to continue rationing controls over the distribution of those major food groups which are now under rationing. It is assumed that the recent removal of some important foods from rationing is temporary and that the need for meeting non-civilian requirements (when compared with total available supplies) will require the resumption of rationing in order to assure reasonably equitable distribution to civilians.

### Quantitative Adequacy of Requirements

The total amounts of various kinds of food covered by our requirements calculations are given in Table 1.

These amounts in most instances are well within the supply estimates for the fiscal year 1944-45. For a few foods the required amounts could not be supplied from the presently contemplated domestic production without affecting the allocations of other claimants. However, in most of these instances there are means of bringing supply into line with total requirements.

Table 2 compares the 1944-45 civilian food requirements with the consumption of previous periods in terms of per capita weights. It will be noted that the 1944-45 requirements call for a continuation of the present general shift away from the foods that are expensive to produce in terms of agricultural resources and manpower into less costly foods. The requirements contemplate the maintenance or increase of the high level of consumption of such relatively cheap nutritious foods as cereals, potatoes, fresh vegetables, dry beans and peas, and peanuts.

### Nutritive Evaluation

The nutritive values corresponding with the 1944-45 requirements are similar, on the whole, to those of the 1943 civilian supply and the estimated civilian supply for the 1944 calendar year. Thus they do not indicate any actual deficiencies in terms of average per capita calculations. However, the degree of adequacy of the diets of various sections of the population is hard to predict on the premise of these averages. The number who will get a satisfactory diet will depend, of course, on success in achieving equitable distribution and on the degree to which individuals and families adapt themselves to wartime shortages and shifts in local supply.

Although in making the evaluation rough estimates of cooking losses have been made in the case of thiamine, riboflavin, niacin, and ascorbic acid, no corrections have been made for the waste of edible material after it enters the home. Moreover, the evaluation is based on the realization of the 1944-45 requirements. The shifting of claims which is necessary in the allocation procedure might bring about substantial changes in the evaluation.



Table 1. -- AGGREGATE Civilian REQUIREMENTS for 1944-45, by MAJOR FOOD GROUPS 1/

Commodity	Unit	Total Requirement
Meat (Dressed Weight)	Mil. lbs.	
Beef and Veal	" "	8,308.7
Lamb and Mutton	" "	648.8
Pork (Excl. Lard)	" "	7,613.2
Total Meat	" "	16,570.7
Fish (Edible Weight)	" "	
Fresh and Frozen	" "	650.5
Cured	" "	65.1
Canned (Processed Weight)	" "	410.0
Total Fish	" "	1,125.6
Poultry Products		
Eggs (Farm Weight)	Mil. Doz.	3,793.0
Chickens (Dressed Weight)	Mil. lbs.	3,447.0
Turkeys	" "	390.0
Dairy Products (Processed Weight)		
Milk, Fresh Fluid	Mil. lbs.	44,869.0
Cream (20% Fat)	" "	1,170.0
Cheese	" "	650.0
Condensed & Evaporated Milk	" "	1,951.0
Condensed Skim Milk	" "	325.0
Ice Cream - Whole Milk	" "	1,183.0
" " - 40% Cream	" "	221.0
Malted Milk	" "	13.0
Non-Fat Dry Milk Solids	" "	312.0
Dried Whole Milk	" "	19.5
Cottage & Other Skim Milk Cheese	" "	195.0
Buttermilk, Choc. Drink, & Skim Milk	" "	7,543.0
Fats & Oils (Fat Content, except Butter)		
Butter, Farm and Factory	Mil. lbs.	1,639.0
Lard	" "	1,755.0
Shortening & Other Oils	" "	1,886.0
Margarine	" "	456.0
Total Fats and Oils	" "	5,736.0

Table 1, Cont'd -- AGGREGATE Civilian REQUIREMENTS for 1944-45 by  
MAJOR FOOD GROUPS 1/

Commodity	Unit	Total Requirement
<b>Fruits</b>		
Fresh (Farm Weight)		
Citrus	Mil. lbs.	8,076.0
Apples	" "	4,162.0
Other Fruit	" "	6,464.0
Canned (Processed Weight)	Mil. Cases #2 <sup>1</sup> / <sub>2</sub> 's	26.0
Canned Juices (Processed Weight)	" " #2's	32.0
Frozen (Processed Weight)	Mil. lbs.	207.0
Dried (Packed Processed Basis)	Thous. Tons	320.0
<b>Vegetables</b>		
Fresh (Farm Weight) <u>2/</u>	Thous. Tons	16,143.0
Canned (Processed Weight) <u>3/</u>	Mil. Cases #2's	147.0
Frozen (Processed Weight)	Mil. lbs.	175.0
Dehydrated (Processed Weight)	" "	12.0
White Potatoes (Farm weight)	Mil. Bu.	303.5
Sweet " " "	" "	61.5
Dry Beans (Clean Basis)	Thous. Bags (100 lbs)	13,000.0
Dry Peas " "	" "	1,500.0
Tree Nuts (Shelled)	Mil. lbs.	140.0
Peanuts (Farmers' Stock Basis)	" "	1,301.0
<b>Sugars</b>		
Cane and Beet	Thous. Tons, Raw	5,521.8
Other Sugars and Syrups (Processed) <u>4/</u>	Mil. lbs.	3,712.0
Preserves (Processed)	" "	539.0
<b>Grains (Farm Weight)</b>		
Wheat <u>5/</u>	Mil. Bu.	490.7
Rye	" "	11.5
Rice (Milled) <u>6/</u>	Mil. lbs.	806.3
Corn <u>5/</u>	Mil. Bu.	170.9
Oats	" "	33.3
Barley <u>5/</u>	" "	6.8
Soybeans for Flour	" "	7.2

Table 1, Cont'd -- AGGREGATE Civilian REQUIREMENTS for 1944-45 by  
MAJOR FOOD GROUPS 1/

Commodity	Unit	Total Requirement
Miscellaneous		
Dehydrated Soups (Processed Weight	Mil. lbs.	150.0
Coffee, Green	" "	2,104.0
Tea, Black	" "	76.5
Cocoa Beans	" "	508.4
Spices <u>7/</u>	" "	33.4
Yeast		
Active	Mil. lbs.	220.0
Nutritional	" "	2.0
Pectin	" "	3.9
Baking Powder	" "	132.0
Vinegar	Mil. Gal.	169.6

- 1/ Calendar years except for citrus fruit which is crop year ending in year shown; canned fruits, canned vegetables, frozen fruits, and dried fruits which are on a pack year basis; dry beans, dry peas, nuts, and peanuts which are on a crop year basis; and potatoes and sweet potatoes which are on a July-June fiscal year basis.
- 2/ Includes estimated home and market garden production, as well as reported commercial production.
- 3/ Includes baby foods, excludes baked beans, soups and pickles.
- 4/ Includes corn and maple sugar, corn and maple syrup, honey, sugar cane syrup, sorgo syrup, cane refiners' syrup, and edible molasses.
- 5/ Does not include grain used in fermented malt beverages.
- 6/ Includes milled rice (second heads and screenings) used in brewing as the exact quantity is not known. This rice has always been included in data on rice consumption.
- 7/ Includes pepper (black and white), pimiento (allspice), cinnamon and cassia, cloves, ginger, mace, and nutmeg.



Table 2. -- Estimated PER CAPITA Civilian CONSUMPTION, by MAJOR FOOD GROUPS, 1932, 1935-39 Average, 1941, 1942, and 1943, and 1944-45 REQUIREMENTS 1/

Commodity	: 1932	: 1935-39	: 1941	: 1942	: 1943	: Requirements 2/ 1944-45
-----Pounds-----						
Meat (dressed weight)						
Beef and Veal	53.0	62.8	68.1	69.2	58.0	63.9
Lamb and Mutton	7.0	6.7	6.8	7.1	6.3	5.0
Pork (excluding Lard)	70.3	56.1	66.5	61.5	72.9	58.5
Total Meat	130.3	125.6	141.4	137.8	137.2	127.4
Fish (edible weight)						
Fresh and Frozen	<u>3/</u>	4.5	5.0	4.0	4.3 <u>4/</u>	5.0
Cured	<u>3/</u>	1.1	0.9	1.0	0.8 <u>4/</u>	0.5
Canned (Processed Weight)	<u>3/</u>	4.9	4.7	3.3	2.6 <u>-/</u>	3.2
Total Fish	<u>3/</u>	10.5	10.6	8.3	7.7	8.7
Poultry Products						
Eggs (Farm Weight)	38.9	37.2	38.9	39.1	43.0	43.8
Chickens (Dressed wt.)	19.7	17.9	19.4	21.5	28.1	26.7
Turkeys " "	2.1	2.6	3.6	3.7	3.2	3.0
Dairy Products (Processed Wt.)						
Milk, Fresh Fluid	280.8	272.1	280.9	295.6	330.5	345.0
Cream (25% Fat)	11.1	10.9	11.2	12.1	14.6 <u>5/</u>	9.0 <u>5/</u>
Cheese	4.4	5.5	6.0	6.4	5.0	5.0
Condensed & Evaporated						
Milk	13.9	16.7	18.3	18.3	18.8	15.0
Condensed Skim Milk	2.1	2.8	3.8	4.2	4.4	2.5
Ice Cream - Whole Milk	3.7	5.9	8.3	9.5	9.0	9.1
" " - 40% Cream	1.1	1.8	3.0	2.9	1.7	1.7
Malted Milk	0.1	0.1	0.1	0.2	0.2	0.1
Non-fat Dry Milk Solids	1.2 <u>6/</u>	1.9	2.4	2.3	1.4	2.4
Dried Whole Milk	0.1	0.1	0.2	0.2	0.3	0.2
Cottage & Other Skim						
Milk Cheese	1.3	1.5	1.9	2.0	1.4	1.5
Buttermilk, Choc. Drink, & Skim Milk	52.6	53.9	56.2	57.7	58.8	58.0
Fats and Oils (Fat Content, Except Butter)						
Butter, Farm & Factory	18.1	16.7	15.9	15.6	12.0	12.6
Lard	14.3	10.9	14.1	13.5	14.5	13.5
Shortening & Other Oils	12.1	18.1	18.7	17.0	16.2	14.5
Margarine	1.3	2.3	2.2	2.2	3.2	3.4
Total Fats & Oils	45.8	48.0	50.9	48.3	45.9	44.0

Table 2. -- Cont'd. Estimated PER CAPITA CIVILIAN CONSUMPTION by MAJOR FOOD GROUPS, 1932, 1935-39 Average, 1941, 1942, and 1943, and 1944-45 REQUIREMENTS 1/

Commodity	1932	1935-39	1941	1942	1943	Requirement 1944-45
-----Pounds-----						
<b>Fruits</b>						
Fresh (Farm Weight)						
Citrus	36.5	48.8	59.8	57.9	59.8	62.1
Apples	<u>3/</u>	30.2	30.9	26.8	23.0	32.0
Other Fruit <u>7/</u>	69.7	75.5	75.9	59.4	48.3	49.7
Canned (Processed Wt.)	10.3	14.7	18.7	13.5	10.3	8.8
Canned Juices " "	<u>3/</u>	6.0	7.6	6.0	6.4	7.3
Frozen " "	.6	1.0	1.3	1.7	1.4	1.6
Dried (Packed Processed Basis)	5.5	5.7	4.5	4.3	5.3	4.9
<b>Vegetables</b>						
Fresh (Farm Weight) <u>8/</u>	204.2	212.1	218.8	242.0	237.5	250.7
Canned (Processed Weight) <u>9/</u>	<u>3/</u>	30.4	37.5	39.9	30.9	33.1
Frozen	<u>3/</u>	.6	.8	1.1	1.2	1.4
White Potatoes (Farm Wt)	142.7	131.3	124.4	120.3	141.6	140.0
Sweet Potatoes " "	29.0	23.4	20.7	22.3	23.3	26.0
Dry Beans (Clean Basis)	7.4	8.8	8.7	8.6	9.3	10.0
Dry Peas " "	<u>3/</u>	0.5	0.4	1.2	1.2	1.2
Tree Nuts (Shelled Basis)	1.0	1.0	1.1	0.9	1.0	1.1
Peanuts (Farmers' Stock Basis)	5.9	6.4	6.6	8.8	9.5	10.0
<b>Sugar</b>						
Cane and Beet (Refined Basis)	94.7	96.5	103.6	86.2	79.1	79.3
Other Sugars and Syrups (Processed) <u>10/</u>	15.6	14.3	16.8	23.3	21.0	21.1
Preserves (Processed) <u>3/</u>	<u>3/</u>	<u>3/</u>	3.0	2.7	3.9	4.1
<b>Grains (Farm Weight)</b>						
Wheat <u>11/</u>	225.1	221.4	217.1	219.5	225.9	226.4
Rye	4.0	3.2	4.2	4.8	4.9	5.0
Rice (Milled) <u>12/</u>	6.0	5.8	5.2	6.2	5.8	6.2
Corn <u>11/</u>	59.1	50.6	59.1	68.0	67.7	73.4
Oats	10.1	6.8	7.1	8.0	8.1	8.2
Barley <u>11/</u>	5.3	1.7	1.8	1.9	2.2	2.5
Soya Flour	<u>13/</u>	0.2	0.4	0.5	0.9	3.3
<b>Miscellaneous</b>						
Coffee, Green	11.9	14.0	15.5	13.4	13.1	16.2
Tea	0.8	0.7	0.8	0.5	0.5	0.6
Cocoa Beans	3.2	4.4	4.8	3.8	3.1	3.9

Footnotes on next page.

Table 2. -- Footnotes.

- 1/ Calendar years except for citrus fruit which is crop year ending in year shown, canned fruits, canned vegetables, frozen fruits, and dried fruits which are on a pack year basis; dry beans, dry peas, nuts, and peanuts, which are on a crop year basis; and potatoes and sweet potatoes which are on a July-June fiscal year basis.
- 2/ Preliminary.
- 3/ Not available.
- 4/ Civilian allocation for year beginning July 1943.
- 5/ On basis of 20 per cent cream.
- 6/ Estimate
- 7/ Includes melons
- 8/ Includes estimated home and market garden production, as well as reported commercial production.
- 9/ Includes baby food, excludes baked beans, soups and pickles.
- 10/ Includes corn and maple sugar, corn and maple syrup, honey, sugar cane syrup, sorgo syrup, cane refiners' sirup, and edible molasses.
- 11/ Does not include grain used in fermented malt beverages.
- 12/ Includes heads, second heads, and screenings used in fermented malt beverages.
- 13/ Practically none.

## MEAT

(Prepared by Paul L. Fletcher)

### Summary

Meat is desirable nutritionally and highly important in consumption habits, since it is the food around which the principal family meal is usually built. It is therefore important to assure a reasonable minimum to every household. Our objective has been to provide a per capita household ration of 1.5 pounds a week. But in order to assure such a ration it is necessary to include special allowances to cover consumption in restaurants, consumption by heavy workers and invalids, and to provide for that part of the meat from farm and other types of slaughter which does not pass through regular channels of distribution and therefore is not subject to effective control.

The total July 1944-June 1945 civilian meat requirement calculated on this basis is 127.4 pounds (dressed weight) per capita. This requirement is the minimum amount needed under controlled distribution. Without control of distribution a much larger quantity would be needed in order to assure availability of the minimum requirements for all consumers. Included in the total are 54.8 pounds of beef, 9.1 pounds of veal, 5.0 pounds of lamb and mutton, and 58.5 pounds of pork. It is requested that the total amount of meat be made available at the rate of 29.8, 31.9, 34.1, and 31.6 pounds per quarter, respectively. Distribution of the requested allocation by various types of meat and by quarters is discussed in more detail in the following pages.

### Significance to the Food Supply

Meat is one of our most important foods from the standpoint of dietary habits. Its palatability makes it one of the most desirable and universally liked components of the diet. It is the food item around which most housewives build their family meals, at least one a day, and is commonly looked upon as the food most necessary for physical strength and vigor. Moreover, meat is very desirable nutritionally. The proteins in meat are of high biological value, comparable with those of eggs, milk, and cheese. Historically, meat has contributed a significant fraction of the protein, fat, B vitamins, calories, and minerals in the American diet. During the fiscal year beginning July 1, 1944, meat, poultry, and fish are expected to contribute about one-fourth of the thiamine, and more than one-third of the niacin in the civilian diet. Meat also supplies very substantial amounts of riboflavin; and liver and kidneys are particularly rich in Vitamin A.

These nutrients, however, can be obtained from other foods that are less expensive in terms of the agricultural resources required for their production. Consequently, consumption of meat can be reduced



during wartime if production of these other foods is sufficient to provide the necessary protein, vitamins, and minerals. There are certain nutritional limitations, however, to the possibility of substituting other foods for meat. One of these is the desirability of supplying about one-third of the protein requirement in the form of animal protein. This limitation, however, is not serious for any but the lowest income groups, since the animal protein requirement can be met by very small quantities of meat if sufficient milk and eggs are available. The second limitation is that substitution is more difficult for adults doing heavy work. Because meat carries a substantial proportion of fat, it supplies nutrients in relatively concentrated form, and when other foods are substituted greater quantities must be consumed. Heavy workers, therefore, may find it difficult to ingest the quantities of substitute foods that would be needed to supply the calories and other nutrients necessary to sustain themselves. Finally, civilians are accustomed to eating about 136 pounds of meat (dressed weight) per capita annually. Because of established food habits it would be difficult to replace any considerable proportion of this quantity through the substitution of other protein foods which are not generally considered as palatable or desirable.

#### Consumption and Demand

The 1935-39 average civilian consumption of meat was 125.6 pounds per capita, as shown in table 3. Production of meat in this period was considerably below average because of reduced livestock production accompanying two of the worst droughts in the history of this country. The all-time record low meat consumption of 116 pounds per capita was established in 1935. Production had only partly recovered by 1939 when average consumption was 134 pounds. By 1941, however, consumption had reached a level of slightly over 141 pounds per capita. Since that time civilian consumption, because of large requirements for the armed forces and Lend-lease, has declined to approximately 137 pounds per capita.

Table 3.--MEATS: Civilian PER CAPITA and AGGREGATE ANNUAL CONSUMPTION for Specified Periods and Estimated DEMAND for 1944-45

	:	:	:	:	:	:Estimated
	:	:	:	:	:	: civilian
	:	:	:	:	: 1943	: demand
	: 1932	: 1935-39	: 1941	: 1942	: 1/	: 1944-45
Item	1	2	3	4	5	6
-----Per capita (pounds)-----						
Beef	46.4	54.8	60.5	61.2	50.1	2/
Veal	6.6	8.0	7.6	8.0	7.9	2/
Lamb and mutton	7.0	6.7	6.8	7.1	6.3	2/
Pork	70.3	56.1	66.5	61.5	72.9	2/
Total	130.3	125.6	141.4	137.8	137.2	170.0
-----Aggregate (millions of pounds)-----						
Beef	5,830	7,111	8,024	8,104	6,492	2/
Veal	822	1,038	1,003	1,054	1,020	2/
Lamb and mutton	882	868	906	934	818	2/
Pork	8,826	7,286	8,830	8,139	9,455	2/
Total	16,360	16,303	18,763	18,231	17,785	22,109

1/ Preliminary.

2/ Demands not estimated by kinds of meat because, within rather wide limits, one kind of meat is substitutable for another.

SOURCE: THE LIVESTOCK AND WOOL SITUATION, April 1944; LIVESTOCK, MEATS AND WOOL, May 3, 1944; and BAE: demand, BAE.

Since meat is universally well-liked but relatively expensive, demand for it increases rapidly with increasing income, as shown in table 4.

Table 4.--MEATS: Civilian PER CAPITA CONSUMPTION in U. S. Households, by Net Income Class, Spring 1942

Income per annum	Pounds per capita, retail weight
All classes	1.78
\$0-499	.97
\$500-999	1.28
\$1,000-1,499	1.53
\$1,500-1,999	1.81
\$2,000-2,999	2.18...
\$3,000 or over	2.37

SOURCE: Unpublished material from the Bureau of Human Nutrition and Home Economics.

The high level of employment and income existing during recent years has been accompanied by a material increase in the demand for meats. In the absence of controlled distribution, but with continuance of present price relationships, it is estimated civilian demand for meats in the year beginning July 1, 1944, will approach 170 pounds per capita.

#### Problem of Distributing a Short Supply

In light of the intensity of demand for meat and controlled prices, an extremely inequitable distribution of meat may be expected if consumers are permitted to compete freely for a quantity of meat much less than 170 pounds per capita.

#### Determination of Requirements

The civilian requirement for meat is based on the objective of assuring a minimum weekly household allowance of 1.5 pounds of meat per capita, a reasonable minimum of the basic item in the conventional family meal. But in one respect this objective has special nutritional significance. While a weekly household allowance of 1.5 pounds of meat per capita is above the average biological need, it is none too liberal for men doing moderately active work. The needs of heavy workers can be covered by in-plant feeding and, where necessary, by special allowances; but unless we are prepared to incur the administrative difficulties and costs of differential rationing on the basis of biological needs it is necessary to set the minimum household allowance high enough to meet the needs of moderately active workers.

To the basic household allowance must be added allowances for restaurants and other institutions, which is estimated at 25 percent of the amount needed to meet the household ration; special allowances for heavy workers, including in-plant feeding; and supplementary rations for invalids and others who require special diets.

The requirement for all of these groups for the fiscal year is as follows:

<u>Item</u>	<u>Millions of pounds, dressed weight</u>
Controlled distribution	
Household ration .....	10,360.8
Institutional use .....	2,590.2
Special needs groups	
Heavy workers .....	761.0
Patients (non-hospitalized) ....	129.7
Total .....	13,841.7
Non-controlled distribution	2,729.0
Total requirements .....	16,570.7



In order to assure the availability of the household allowance of 1.5 pounds weekly to all individuals it is necessary to make allowance for inequitable distribution of certain types of slaughter. It is estimated that (1) 75 percent of the meat from farm slaughter is either consumed on the farm or locally and therefore is not subject to effective control, (2) purchases of meat by farm families from controlled channels of distribution will amount to 40 percent of the household ration, and (3) as much as 22 percent of the meat produced in non-inspected wholesale and retail slaughtering establishments is not subject to effective control. On the basis of these assumptions the quantity of meat required from different types of slaughter to meet the July 1944 to June 1945 civilian requirement is shown in table 5.

Table 5.--MEATS: DISTRIBUTION of CIVILIAN REQUIREMENT, by Type of Slaughter, for 1944-45

	: Controlled :	Non-controlled :	
Type of slaughter	: distribution:	distribution :	Total
	: 1 :	2 :	3
- -(Millions of pounds, dressed weight) - -			
Federally inspected	9,811.7	---	9,811.7
Non-inspected whole-			
sale and retail	3,444.0	971.0	4,415.0
Farm	586.0	1,758.0	2,344.0
Total	13,841.7	2,729.0	16,570.7

Usually civilian meat consumption is composed of approximately 41.1 percent beef, 5.6 percent veal, 4.4 percent lamb and mutton, and 48.9 percent pork. However, in view of anticipated production and non-civilian requirements, the civilian meat requirement includes 43.0 percent beef, 7.2 percent veal, 3.9 percent lamb and mutton, and 45.9 percent pork.

#### Quarterly Requirements

The civilian requirement by quarters is shown in table 6. The quarterly requirement follows the general seasonal pattern of production but with less variation among quarters. It is believed that a more uniform distribution than would be provided by strict adherence to the production pattern will result in more efficient and desirable utilization of a limited amount of meat.

Table 6.--MEATS: Civilian PER CAPITA and AGGREGATE ANNUAL REQUIREMENTS for 1944-45, by Quarters

Item	:	:	July-	Oct.-	Jan.-	Apr.-
	:	Total	Sept.	Dec.	Mar.	June
	:	1	2	3	4	5
--Per Capita (pounds, dressed weight) --						
Total meats						
Federally inspected	75.4	18.9	19.2	19.1	18.2	
Other wholesale and retail	34.0	8.1	8.0	9.0	8.9	
Farm	18.0	2.8	4.7	6.0	4.5	
Total	127.4	29.8	31.9	34.1	31.6	
Beef						
Federally inspected	34.4	8.2	8.8	8.5	8.9	
Other wholesale and retail	18.4	4.6	4.3	4.8	4.7	
Farm	2.0	.2	.7	.7	.4	
Total	54.8	13.0	13.8	14.0	14.0	
Veal						
Federally inspected	4.2	1.2	1.0	.9	1.1	
Other wholesale and retail	4.2	1.1	1.1	1.0	1.0	
Farm	.7	.1	.2	.2	.2	
Total	9.1	2.4	2.3	2.1	2.3	
Lamb and Mutton						
Federally inspected	4.2	1.2	1.1	1.0	.9	
Other wholesale and retail	.6	.2	.1	.1	.2	
Farm	.2	.1	.1	1/	1/	
Total	5.0	1.5	1.3	1.1	1.1	
Pork						
Federally inspected	32.6	8.3	8.3	8.7	7.3	
Other wholesale and retail	10.8	2.2	2.5	3.1	3.0	
Farm	15.1	2.4	3.7	5.1	3.9	
Total	58.5	12.9	14.5	16.9	14.2	
Aggregate (millions of pounds, dressed weight)						
Total meats						
Federally inspected	9,811.7	2,546.7	2,490.0	2,482.5	2,382.5	
Other wholesale and retail	4,415.0	1,050.0	1,044.0	1,168.0	1,153.0	
Farm	2,344.0	355.0	607.0	800.0	582.0	
Total	16,570.7	3,861.7	4,141.0	4,450.5	4,117.5	
Beef						
Federally inspected	4,475.8	1,065.9	1,134.2	1,110.6	1,165.1	
Other wholesale and retail	2,389.0	603.0	560.0	623.0	603.0	
Farm	255.0	24.0	92.0	89.0	50.0	
Total	7,119.8	1,692.9	1,786.2	1,822.6	1,818.1	

Continued

Table 6.--MEATS: Civilian PER CAPITA and AGGREGATE ANNUAL REQUIREMENTS for 1944-45, by Quarters (Continued)

Item	: : Total : 1	: July- : Sept. : 2	: Oct.- : Dec. : 3	: Jan.- : Mar. : 4	: Apr.- : June : 5
Aggregate (millions of pounds, dressed weight)					
Veal					
Federally inspected	547.9	156.0	130.3	117.6	144.0
Other wholesale and retail	551.0	138.0	139.0	134.0	140.0
Farm	90.0	16.0	30.0	28.0	16.0
Total	1,188.9	310.0	299.3	279.6	300.0
Lamb and Mutton					
Federally inspected	547.8	156.0	143.4	130.6	117.8
Other wholesale and retail	75.0	21.0	18.0	18.0	18.0
Farm	26.0	5.0	10.0	7.0	4.0
Total	648.8	182.0	171.4	155.6	139.8
Pork					
Federally inspected	4,240.2	1,078.8	1,082.1	1,123.7	955.6
Other wholesale and retail	1,400.0	288.0	327.0	393.0	392.0
Farm	1,973.0	310.0	475.0	676.0	512.0
Total	7,613.2	1,676.8	1,884.1	2,192.7	1,859.6

1/ Less than .05 pounds.

### Canned Meat

Canning of meat is desirable as a means of preventing wastage during periods of peak slaughter, and it also permits carrying over some of the production in such periods for consumption in periods when slaughter is small. Because of the ease of storing and preparing canned meat for final consumption, it fills an important place in the civilian food supply, particularly during the wartime period when so many housewives are engaged in war work. Canning of meat also relieves some of the pressure on limited storage facilities. Many of the canned items consist of trimmings and edible offal. During the second quarter of the fiscal year when production likely will be heavy, wastage of these products may occur unless part of the production is canned.

Because meat production during the first half of 1945 is expected to be less than in the corresponding period of 1944, a slightly larger allocation of canned meat is requested in the fiscal year beginning July 1, 1944 than was granted in the 1944 calendar year allocation. A generous supply of canned meat, which can be processed during the season of peak slaughter, is desirable as a means of supplementing the anticipated limited supply of fresh meat during the last quarter of the fiscal year.

Table 7.--CANNED MEAT: Civilian AGGREGATE ANNUAL REQUIREMENT  
for 1944-45 1/

Product	: Packed : in tin : 1	: Packed : in glass : 2	: Total : 3
(Thousands of pounds, dressed weight)			
Beef, dried	---	12,962	12,962
Beef tongue	5,444	---	5,444
Brains	3,695	---	3,695
Chili con carne	9,142	5,801	14,943
Chopped luncheon meat	148,412	32,975	181,387
Corn beef hash	38,822	47,419	86,241
Hams, whole	159,235	---	159,235
Lamb tongue	725	1,143	1,868
Meat loaf	6,438	---	6,438
Meat spreads	8,501	16	8,517
Mince meat	---	289	289
Oxtail	---	416	416
Pigfeet and cutlots	---	38,812	38,812
Pork sausage	15,856	---	15,856
Potted and deviled meat	89,785	---	89,785
Scrapple, Philadelphia	---	971	971
Sausage in oil	37	---	37
Sausage, Vienna	84,088	46	84,134
Tamales	---	440	440
Total	570,180	141,290	711,470

1/ Distribution between tin and glass based on WPB Order M-81  
as amended May 6, 1944, and WPB Supplementary Order L-103-b  
as amended March 23, 1944.



## FISH

(Prepared by Isabelle M. Kelley)

### Summary

Fish traditionally has been one of the cheapest sources of animal protein and an important source of this nutrient in the diets of consumers living in coastal cities, especially those families having restricted food budgets. Despite its increased price, fish remains a relatively good source of efficient protein and the demand for it is at record levels. Certain types of canned fish are especially important to low income families.

The civilian requirement for fresh and frozen fish has been placed at a level which, we believe, will permit an orderly market in coastal cities if not more than the usual quantities are moved into inland centers. In view of the needs for cured fish for relief feeding, the requirement for cured fish has been reduced below the 1943 level and is less than one-half of consumption in pre-war years. The requirement for canned fish is placed at a level equal to the quantity already allocated to civilians from the 1944 pack.

### Dietary Significance

Meat, poultry, and fish provided about one-fourth of the iron, one-fifth of the fat, somewhat more than one-fourth of the thiamine, and almost one-half of the niacin in the average American diet in 1943. Whereas, fish is only a fair source of iron as compared with meat, it is an excellent source of protein of high biological value and of niacin. Fish, therefore, makes an important contribution to the nutritional adequacy of the civilian diet, especially as its largest distribution occurs in coastal areas where meat distribution tends to be spotty.

The palatability of fish makes it one of the most desirable components of the diet. Fish, like poultry and meat, is a main-dish item in the usual family menu. For this reason, fish is a more acceptable meat substitute than dry beans and peas. Reductions in available supplies of the most desirable cuts of meat together with high prices of poultry, have tended to increase the importance of fish to low-income families. In coastal areas fresh fish supplies much of the protein in the diets of such families; and in areas removed from the coast, the cheaper types of canned fish, such as pink and chum type salmon and canned mackerel, as well as some cured fish, are important staple foods for low-income families.

### Consumption and Demand

Per capita consumption of fresh and frozen fish has ranged between 4.5 and 5.0 pounds annually in recent years and cured fish consumption has



It is estimated that the free market demand for fresh and frozen fish in the year beginning July 1, 1944 will total 5.5 pounds per capita. It is expected that the relatively abundant supplies of meat currently available will be dissipated by the last quarter of 1944 and distribution of meat in coastal areas probably will be spotty and the demand for fish will increase sharply. Although retail prices of fish have increased substantially, which in normal times would tend to reduce demand, meat rationing and the high prices of poultry have made the demand for fish less sensitive to price changes than in previous years. Demand for cured fish is relatively stable and demand is expected to be approximately equal to per capita consumption in 1935-39 (Table 8).

It is estimated that the demand for canned fish would be at the record level of 6.0 pounds per capita for the year beginning July 1944. Supplies from the 1944 pack will flow into civilian distribution channels in the latter part of 1944, and it is expected that the reduced supplies of meat forecasted for that period will transfer part of the consumer demand for meat to canned fish. Demand for canned mackerel and pink and chum type salmon have increased due to the pressure of high meat and poultry prices on families with restricted food budgets. The rise in consumer incomes is one of the most important factors leading to increased demand for canned tuna, oysters, and shrimp.

#### Problems of Distributing a Short Supply

Distribution of canned fish from the 1943 pack was unsatisfactory, despite rationing controls. Even at high point values (16 points per pounds) canned fish moved off retail shelves at too rapid a rate, especially in the South and Southwest. Currently, the majority of areas report scarce or completely depleted stocks. Fish from the 1944-45 pack will not reach the market in volume until late in 1944; and an increasingly difficult distribution problem is anticipated with acute shortages in the South and Southwest. It appears that the civilian supply of canned fish must be at a level higher than in 1943-44 in order that the supply may be distributed in an orderly manner. Cured fish has not had wide distribution in this country and distribution of a relatively short supply in 1943 appears to have been in a reasonably equitable manner under WFO 72.

Fresh fish consumption normally is at a higher level in coastal areas than in most inland sections. Many retail stores in areas far from the coast are not equipped to handle fresh or frozen fish and this is a limiting factor in stimulating wider distribution. Combined with the perishability of fresh fish, this limitation would make rationing of these items impractical. During most of the period for which requirements are submitted meat supplies will be relatively short and distribution of meats in coast areas probably will be spotty and irregular. With a short supply of fresh fish it would be difficult to retain adequate supplies of fresh fish in these areas because of the pressure to move more than normal supplies to inland cities.



# Determination of Requirements

In view of the difficulties of distributing a short supply of fresh and frozen fish under rationing it would be desirable to supply these commodities to civilians in amounts necessary to meet unrestricted demand. However, the cost in additional resources (manpower, release and reconversion of fishing boats now in government service, etc.) that would be required to achieve the level of supply needed to satisfy all demands would be greater than the additional contribution to the adequacy of the civilian diet. Consequently, the requirement of fresh and frozen fish has been placed at 650.5 million pounds (5.0 pounds per capita), which will insure a reasonable equitable distribution on the seaboard and lake shores. This figure is higher than the previous allocation but favorable developments in anti-submarine warfare make the prospects favorable for a substantial increase in the fish catch over the low levels of last year.

It appears possible to achieve a reasonably equitable distribution of cured fish without rationing at the retail level. In view of this and the needs for cured fish for relief feeding, the civilian requirement is placed at 65.1 million pounds. This is below the level of supplies in 1943 but in view of the limited distribution of this item it is believed that reasonably equitable distribution can be achieved by the continuation of WFO 72.

The requirement for canned fish is placed at 410 million pounds. This requirement, if met, would make possible some improvement in the distribution of civilian supplies and would provide adequate quantities of canned salmon and mackerel to low income groups, especially in the South and Midwest.

Civilian requirements for individual items are shown in Table 10.

Table 10. FISH: Civilian PER CAPITA and AGGREGATE ANNUAL REQUIREMENTS  
for 1944-45

Item	1944-45 Civilian Requirement	
	Per Capita	Aggregate
	Pounds	Million Pounds
Fresh and frozen <u>1/</u>	5.0	650.5
Cured <u>1/</u>	0.5	65.1
Canned <u>2/</u>		
Salmon	1.1	139.9
Pilchards	0.9	122.1
Sea herring	0.2	22.1
Mackerel	0.3	37.5
Tuna	0.4	47.5
Shrimp	0.1	10.4
Other fish and roe	0.1	15.5
Other shellfish	0.1	15.0
Total	3.2	410.0

Grand Total

1/ Edible weight basis.

2/ Processed weight.

EGGS, CHICKENS, AND TURKEYS  
(Prepared by John W. Carncross)

Summary

Eggs hold a very high place in the American diet because they are very adaptable and highly nutritious. They furnish high quality protein, and consequently may be used as a direct substitution for meat. They are readily combined with many other foods to enhance their value or make good their deficiencies, thus helping to balance the diet. Civilian consumption in 1943 reached the high level of 344 eggs per person, which is 10 percent more than the previous year and 15 percent more than the 1935-39 average. Estimates are that demand in 1944-45 may exceed 350 eggs per person.

The rationing of eggs would be extraordinarily difficult. Consequently in the light of the intensity of demand for eggs, and their dietary importance, the civilian supply should be maintained at a high level, consistent with the most pressing needs of other claimants.

Civilian requirements for the fiscal year 1944-45 have been placed at 350 eggs per person. In view of the experience of 1943 and considering the high level of consumer incomes during the coming year, this quantity is the lowest possible without encountering serious disruptions of local supply and encouragement of black markets. The apparent surplus this spring (1944) should not be permitted to give a false sense of adequate supplies. These can only be maintained by a large into storage movement during the summer and by maintaining production at a high level for the rest of 1944.

Dietary Significance

There is a large consumption of eggs not only because the housewife finds them so highly adaptable in her cookery program, but also because they are generally well liked and widely used by all groups of the population. Eggs are especially valuable for growing children and convalescents since the proteins are the type indispensable for building up physical strength, and the organic food-iron present in eggs is essential to blood-making. They also contribute toward greater use of milk and cereals.

Eggs are a good source of high quality protein and of iron, and a fair source of thiamine, riboflavin, calcium, and vitamin A. Eggs furnished approximately the following percents of nutrients in the diet in 1943: protein 6; iron 9; riboflavin 11. The protein of eggs is comparable to that of other animal proteins and eggs are a direct substitute for meat. The riboflavin and iron contributions are also important; there is an inadequate supply of riboflavin in many diets, and of iron in some.

# Consumption and Demand for Eggs

Consumption of eggs has increased from 311 eggs per capita in 1932 and an average of 298 eggs for the year 1935-39 to a high point of 344 eggs per capita in 1943. The level of consumption attained in 1943 is 10 percent more than for the previous year, 15 percent greater than the 1935-39 average, and 11 percent more than the 1932 per capita consumption.

Table 11--EGGS AND POULTRY: Civilian PER CAPITA ANNUAL CONSUMPTION for Specified Periods, and Estimated DEMAND for 1944-45 1/

Item	: Apparent Civilian Consumption : Estimated					
	: Civilian					: Demand
	: 1932	: 1935-39:	1941	: 1942	: 1943/2:	1944-45
	: 1	2	3	4	5	6
----- No. of Eggs -----						
Eggs	311	298	311	313	344	350/ <u>3</u>
----- Pounds -----						
Chickens <u>4/</u>	19.7	17.9	19.4	21.5	28.1	31.5
Turkeys <u>4/</u>	2.1	2.6	3.6	3.7	3.2	6.0

1/ USDA, BAE, Div. of Historical and Statistical Research.

2/ Preliminary.

3/ May be somewhat in excess of this figure.

4/ Dressed weight basis.

For the early part of 1943, supplies of eggs were slightly more than sufficient to meet demand at ceiling prices. In other parts of the year, however, supplies of at least some grades were insufficient to meet demand in certain areas of the country at ceiling prices. On this premise it seems reasonable to conclude that in 1943 civilians probably would have taken more than 345 eggs, if ample supplies had been available to meet civilian demand at prevailing ceiling prices in all important consuming centers. Civilian demand for eggs in 1944-45 probably will be stronger than in 1943. A reasonable estimate is that in 1944-45, at the present schedule of ceiling prices, civilians would consume somewhat in excess of 350 eggs per person if they were available at present ceiling prices.

Aggregate consumption and estimated demand are given in the table below.

Table 12--EGGS AND POULTRY: Civilian AGGREGATE ANNUAL CONSUMPTION for Specified Periods, and Estimated DEMAND for 1944-45 1/

Item	: Apparent Civilian Consumption					: Estimated
	: 1932	: 1935-39:	1941	: 1942	: 1943	2/ Demand 44-45
	: 1	2	3	4	5	6
	- - - - - Million Dozen - - - - -					
Eggs	3,258	3,225	3,434	3,450	3,720	3,793
	- - - - - Million Pounds - - - - -					
Chickens <u>3/</u>	2,478	2,325	2,568	2,844	3,636	4,097
Turkeys <u>3/</u>	261	343	473	488	421	780

1/ USDA, BAE, Div. of Historical and Statistical Research.

2/ Preliminary.

3/ Dressed weight basis.



### Problem of Distributing a Short Supply of Eggs

Farms in the East and West North Central Regions of the United States account for about half (49.7 percent in 1942) of the total farm production of eggs. This is the area of plentiful supplies of feed, one of the two major factors affecting egg production. The West South Central Region is also an important egg-producing area, supplying 10.8 percent of the eggs produced on farms in 1942. The Pacific Coast, a specialized area, has been declining generally in egg production during the past decade or so. The Northeast, another specialized area, has shown a somewhat steady increase in production over the past several years. These latter two areas require imports of feedstuffs for the poultry flocks.

Data on the distribution of the civilian population of the United States as estimated on May 1, 1942, show that about one-third (30.6 percent) of the population is located in the East and West North Central states. In normal times a major movement of shell eggs occurs between regions to supply the consumer needs of the population. This movement is somewhat curtailed because the egg-drying industry tends to be concentrated at the point of surplus egg production and also because consumption may be greater in and near the areas of heavy production.

The rationing of eggs on a nationwide basis would be a very difficult, if not impossible, undertaking. One factor is the difficulty of controlling supplies on a regional basis because of the variations in production among areas. Another is regional differences in seasonal production patterns. It is doubtful that strict rationing could be enforced in or near areas of surplus egg production. Today a rather significant volume of eggs is produced by non-farm, back-yard flocks, which could not be brought under a rationing program. Even farm production on a considerable scale could be controlled only with great difficulty. In spite of gasoline shortages, many consumers buy direct from the producers or are served by hucksters on regular routes. The country store is another outlet that handles large quantities of eggs in areas where other points of assembly have not been organized. Also about twenty percent of the eggs produced on farms are consumed there and, of course, do not reach regular consumption channels.

### Determination of Civilian Requirements

Egg requirements for civilians in 1944-45 have been placed at 350 eggs per person. In the light of the importance of eggs in consumption habits and the prospective demand, this appears to be the lowest feasible figure. A smaller quantity would risk the development of black markets, long periods of shortage in certain areas, and disproportionately heavy buying by those who have easy access to farms and other places of production, which would increase the inequity of distribution.

The quarterly requirement takes into consideration the seasonal pattern of civilian consumption, which is somewhat less in the late fall and early winter when production is relatively low and prices are relatively high than during the flush season when production is high and prices relatively low. Consumption exceeds production from August through February when there is a net movement of shell and frozen eggs out of storage, to make up for the lower production. There is a normal increase of storage stocks from the first of March to the first of August of nearly six fold. These storage stocks are needed to supply the normal consumption demand in the fall when production is inadequate. There is a normal decline in production from April to November of 61 percent.

Table 13--EGGS AND POULTRY: Civilian PER CAPITA and AGGREGATE ANNUAL REQUIREMENTS for 1944-45, by Quarters

Item	1944-45 Civilian Requirement					
	Per Capita			Aggregate		
	: July-	: Oct.-	: Jan.-	: April-		
	: Sept.	: Dec.	: Mar.	: June		
	: 1	: 2	: 3	: 4	: 5	: 6
	No.	- - - - -	Million Dozen	- - - - -	- - - - -	- - - - -
Eggs	350	3,793	910	835	986	1,062
	Lbs.	- - - - -	Million Lbs.	- - - - -	- - - - -	- - - - -
Chickens 1/	26.7	3,447	1,043	1,114	505	785
Turkeys 1/	3.0	390	3	357	14	16

1/ Dressed weight basis.

Should the movement into storage this spring and summer be less than the amount needed to move out of storage next fall to offset the reduced production, or should the reduction in production be greater than normal, a shortage would occur during that period. The large production this spring is no guarantee of adequate supplies for next fall if the into storage movement is not maintained during the summer or if production is allowed to decrease too much later on this year. The apparent surplus this spring should not give a false sense of security, since an adequate supply for the remainder of the year can be assured only by appropriate storage and production programs.

## Dried Egg Requirements

Civilians have been using around 10,000,000 pounds annually of dried eggs for the past several years. It is estimated that civilian requirements for dried eggs for the year July 1944-June 1945 will be 11,000,000 pounds. This would be equivalent to approximately 32,576,000 dozen eggs, or less than one percent of the total civilian shell egg requirement.

## Chickens and Turkeys 1/

### Summary

Poultry occupies an important place in the civilian consumption pattern as one of the more desirable meats. Nutritionally, it supplies high quality protein and is a good source of certain important minerals and vitamins. Per capita consumption of poultry has increased rapidly during recent years as the result of rising incomes and, later, of meat rationing. Consumer demand in 1944-45 is expected to approximate 31.5 pounds of chicken and 6 pounds of turkey, but both of these figures are above the estimated supply. To control the retail distribution of chickens and turkeys would be exceptionally difficult, if not impossible.

Poultry requirements for the fiscal year 1944-45 represent residual figures after the anticipated needs of other claimants have been met, 26.7 pounds of chicken and 3.0 pounds of turkey per person. While these figures are well below the estimates of demand, they approximate the supplies available to civilians in 1943. These quantities should provide reasonably equitable distribution without special controls. The total quantities required are 3,447 million pounds of chicken and 390 million pounds of turkey, dressed weight basis.

### Dietary Significance

Poultry is held in high esteem as a protein food and is often served interchangeably with the higher priced meats. Because of its relatively high price it is used more by families with high incomes. Data from the Spending and Saving Study conducted by the Bureau of Human Nutrition and

---

1/ Ducks and geese are not included. The Department of Agriculture has not estimated duck production and goals have never been established for this item. However, in view of the importance of duck feathers and down in equipping the armed forces (especially for sleeping bags), the goals committee recommended that in 1944 duck production be maintained at this year's level in some concentrated areas such as Long Island. On an average, it is estimated that between 6 and 7 million pounds of duck and geese are consumed annually, or about 3/4 pound per person.



Home Economics and the Bureau of Labor Statistics in 1942 show that the group of families with incomes of \$3,000 and over consumed almost three times as much chicken per capita as did the group from 0-\$499.

Poultry is nutritionally significant in that it supplies efficient protein to the diet and is a good source of iron. As a source of niacin, and probably of the other B vitamins, it is in the same class as other meat.

#### Consumption and Demand

Per capita consumption of chickens in 1943 totaled about 28.1 pounds. This exceeded all previous records and probably can be attributed to high incomes and to shortages and rationing of "red" meats. The record consumption in 1943 was 31 percent greater than in the previous year, about 57 percent greater than during the 1935-39 period. It is estimated that consumer demand might be as high as 31.5 pounds of chicken per person for the fiscal year 1944-45. (Table 11)

Per capita consumption of turkeys also increased until 1942, when a record high of 3.7 pounds was reached. It is estimated that in 1943 per capita consumption fell to about 3.2 pounds, due to smaller production and larger military requirements. During 1944-45 civilians probably would consume about 6 pounds of turkey per person, if this quantity were available. As with chickens, the availability of larger consumer incomes, the desire for greater variety in foods, and the need for a "red" meat substitute has stimulated the demand for turkeys.

#### Problem of Distributing a Short Supply

Most of our chickens are produced on general farms. There are, however, many specialized poultry farms, some of them large. Commercial broiler production is concentrated in the Delaware-Maryland-Virginia areas on the Atlantic Seaboard, in sections of the Southern States, in Indiana, in northwest Arkansas, and on the Pacific Coast. Broiler production has increased greatly near many metropolitan centers. It is mainly dependent upon purchased and imported feedstuffs, as contrasted with poultry on general farms where at least a part of the rations are produced.

Unlike chickens, most turkeys come from specialized turkey farms. The heaviest turkey producing regions are located in the feed-surplus sections of the United States. The ten major turkey producing states in order of their production in 1942 were: California, Texas, Minnesota, Oregon, Iowa, Missouri, Washington, Nebraska, Utah, and North Dakota. These states supplied about 60 percent of the total United States production of turkeys in 1942.

Because of the large number of farms which produce chickens and the ease with which they can be marketed directly to the retailer and consumer, rationing of chickens would be extremely difficult. It would be impossible to control a substantial part of the supply. As a result, those who had access to small farms would get chickens point-free and black markets would flourish in the cities. The seasonality of production and variations of production among areas would also present major problems if chickens were to be rationed. Turkeys could be distributed more readily through a rationing system than chickens. But for them, also, control would be incomplete and it would be difficult to prevent black markets.

#### Determination of Civilian Requirements

Civilian requirements for chickens for the fiscal year 1944-45 have been fixed at 26.7 pounds per capita. (Table 13) This is the quantity that is expected to be available if the production goals are attained. Although this quantity is considerably smaller than estimated demand, it is nearly equal to the supply available to civilians in 1943. This is believed to be sufficient for relatively satisfactory distribution without need for special controls at the retail level. But it will create substantial pressures on prices. If larger amounts are available, as they may be because of a heavier slaughter of chickens from laying flocks, the civilian allocation should be raised above the figure indicated. The civilian requirement is equivalent to about 39 percent of the total supply if production goals are met.

The civilian requirement for turkeys for the fiscal year 1944-45 is 3.0 pounds of turkey per capita. This figure also has been based on the quantity considered to be available for civilian consumption if the production goals are attained. Some indications point to an increase in the number of breeder turkeys to be saved for next year. However, feed scarcity and restricted prices and labor shortages may hold production of turkeys down to the 1943 level. The civilian requirement is about 81 percent of the total supply if the production goals are attained.

DAIRY PRODUCTS  
(Prepared by John W. Carncross)

Summary

Consumption of dairy products by civilians in the United States increased until 1943. In that year, as a result of heavy military and export demands, and in spite of increased production of fluid milk, the average per capita consumption of dairy products in terms of total milk equivalents fell below the 1935 level. Demand in 1943 for the principal dairy products exceeded supplies available for civilians, and the discrepancy between demand and supply is expected to be even greater during the year July 1944 through June 1945.

Butter, cheese, and evaporated and condensed milk are rationed. Fluid milk distribution is controlled in the larger markets through War Food Order 79. Its purpose is to limit the diversion of milk from manufactured products to consumption in fluid form. Equitable distribution of fluid milk between consumers, especially certain classes of priority users, may require additional control if supplies are further reduced. Some protection for hospitals and school children has already been achieved.

Civilian requirements for dairy products for the year July 1944 through June 1945 are established at what is considered the very minimum need in the light of their nutritive importance and the prospective supply situation. These requirements contemplate reduction of consumption from 762 pounds (fluid milk equivalent) in 1943 to 753 pounds per capita for the year July 1944 through June 1945, which is substantially below the pre-war level.

Significance of Dairy Products in the Total Food Supply

Nutritionally, milk products are the most valuable single food group in our diet. They contain substantial amounts of all essential nutrients except iron, niacin, and thiamine. In addition they are in a form that makes them highly nutritious. They are particularly vital as our best source of calcium and riboflavin. Dairy products furnished about three-fourths of the calcium, one-half of the riboflavin, and one-fourth of the protein in the average diet in 1943.

Fresh milk is being increasingly used as a beverage. Fresh milk consumed in fluid form represented 43 percent of the milk equivalent of civilian consumption of milk and its products in 1943, and cream represented 10 percent. Evaporated milk, since it can be stored for long periods of time, is an important part of the diet of persons having a low fluid milk supply. Its relatively lower price makes it vitally important for low income groups. Because it is a standardized, staple product, and sterile, it is also widely used for infant and invalid feeding.



Butter, of all the forms of fat, is the most sought after. It is the only one of our common food fats that carries any substantial quantities of natural vitamin A; and as it contains about 80 percent fat, it is high in energy value. It is relatively expensive and there are other more economical sources of vitamin A, yet it is generally the most highly prized spread for bread.

### Fluid Milk and Cream

#### Consumption and Demand

Consumption of fluid milk increased from an average of 281 pounds per capita in 1932 to an estimated 330.5 pounds in 1943 (Table 14). During this same period, cream consumption increased from 11.1 pounds to 14.6 pounds. The increase in consumption of these products was caused by higher incomes and by increasing recognition of the nutritional importance of milk. Aggregate consumption of dairy products is shown in Table 15.

Civilian demand for fluid milk and cream in terms of milk equivalents has been estimated at 407.2 pounds per capita for 1944-45 according to estimates supplied by the Bureau of Agricultural Economics.

#### Problems of Distribution

Fluid milk and cream are among the products which are most difficult and expensive to distribute. The products are perishable, and competition has caused considerable duplication of delivery routes. In some areas much of the milk is delivered to the doorstep, whereas in other areas practically all milk is purchased at retail stores. The quality of milk varies from market to market, and there is a wide range in prices in different markets. Local and state health restrictions affect the sale and the movement of milk and cream from community to community. High prices and shortages of milk in some areas have resulted in daily movements by rail of fluid milk from North Central states to Southern states. The nutritive needs of consumers vary widely. The price of milk is so high in some areas that many civilians who have the nutritional need for milk are unable or unwilling to purchase it in adequate quantities.

In recognition of the continuing increase in the amount of fresh and fluid milk and cream consumed in the United States, and since the result was a reduction in the quantities of manufactured dairy products, War Food Order 79 was issued to control further expansion in the amount of fluid milk and cream sold to civilians. The purpose of this order was not specifically to provide equitable distribution of milk at the consumer level, but was drawn in such a way as to permit distribution in local areas on as equitable a basis as the industry could and would devise. Distribution among various classes of consumers in many markets may become unsatisfactory, especially in the short season.



Table 14--DAIRY PRODUCTS: Civilian PER CAPITA ANNUAL CONSUMPTION for Specified Periods, and Estimated DEMAND for 1944-45

Item	: Apparent Civilian Consumption					: Estimated
	: 1932 : 1935-39 : 1941 : 1942 : 1943 1/					: Civilian
	: 1	2	3	4	5	6
	----- Pounds -----					
Milk (Fresh Fluid)	280.8	272.1	280.9	295.6	330.5	407.2 <u>3/</u>
Cream (25% Fat)	11.1	10.9	11.2	12.1	14.6 <u>4/</u>	-
Butter	18.1	16.7	15.9	15.6	12.0	19.1
Cheese, American	3.0	3.9	4.4	4.7	3.2	7.4 <u>5/</u>
Cheese, Other	1.4	1.6	1.6	1.7	1.8	-
Milk, Condensed Whole	1.6	1.6	1.7	1.9	1.5	-
Milk, Evaporated	12.3	15.1	16.6	16.9	17.3	19.7
Milk, Condensed Skim	2.1	2.8	3.8	4.2	4.4	-
Ice Cream, Whole Milk in	3.7	5.9	8.3	9.5	9.0	-
" " , 40% Cream in	1.1	1.8	3.0	2.9	1.7	-
Malted Milk	.09	.11	.13	.22	.16	.24
Nonfat Dry Milk Solids	1.2 <u>6/</u>	1.9	2.4	2.3	1.4	-
Dried Whole Milk	.07	.13	.17	.19	.27	.16
Cottage Cheese <u>7/</u>	1.3	1.5	1.9	2.0	1.4	-
Buttermilk, Chocolate Drink, & Skim Milk	52.6	53.9	56.2	57.7	58.8	-

1/ Preliminary.

2/ Bureau of Agricultural Economics.

3/ Milk equivalent for fluid milk and cream.

4/ On basis of 20% cream.

5/ Demand for all whole milk cheese.

6/ Estimated.

7/ And other skim milk cheese.

Table 15--DAIRY PRODUCTS: Civilian AGGREGATE ANNUAL CONSUMPTION for Specified Periods, and Estimated DEMAND for 1944-45

Item	: Apparent Civilian Consumption					: Estimated
	: 1932	: 35-39	: 1941	: 1942	: 1943	: Civilian
	: 1	: 2	: 3	: 4	: 5	: Demand 44-45
	: 6					
	----- Million Pounds -----					
Milk (Fresh Fluid)	35,257	35,316	37,267	39,105	42,842	52,958 <u>3/</u>
Cream (25% Fat)	1,395	1,413	1,480	1,600	1,888 <u>4/</u>	-
Butter	2,275	2,170	2,105	2,067	1,550	2,484
Cheese, American	371	511	580	617	414	962 <u>5/</u>
Cheese, Other	175	209	210	220	234	-
Milk, Condensed Whole	197	209	221	254	195	-
Milk, Evaporated	1,548	1,954	2,200	2,241	2,239	2,562
Milk, Condensed Skim	261	360	506	550	577	-
Ice Cream, Whole Milk in	460	770	1,100	1,263	1,165	-
" " ,40% Cream in	138	231	400	383	215	-
Malted Milk	11	14	17	29	21	31
Nonfat Dry Milk Solids	149 <u>6/</u>	246	324	310	182	-
Dried Whole Milk	9	17	23	25	35	21
Cottage Cheese <u>7/</u>	164	198	257	263	176	-
Buttermilk, Chocolate Drink, & Skim Milk	6,600	7,000	7,450	7,640	7,620	-

1/ Preliminary

2/ Bureau of Agricultural Economics.

3/ Milk equivalent for fluid milk and cream.

4/ On basis of 20% cream, including 1425 million pounds of 20% cream and 370 million pounds of 25% cream (farm).

5/ Includes all whole milk cheese.

6/ Estimate.

7/ And other skim milk cheese.

War Food Order 79 is now in effect in practically all cities of 50,000 population and over, and directly affects about three-fourths of the urban population of the United States. It may be necessary either to establish definite priority groups among consumers and request that market agents provide milk for these priority users before other classes of consumers obtain milk, or to establish more formal control. Some assistance has already been given to hospitals and school children through the milk orders now in effect.

Equitable distribution of fluid milk and cream among civilians is further complicated by the substitutability of dairy products, especially evaporated and dried milk. Nutritional requirements can be met by any one, or by a combination of these three products, but the nature of the products and the present basis for distributing them make it difficult to devise a rationing or other distribution plan that is practicable and also gives full recognition to their interchangeability.

#### Requirements

The requirement for fluid milk and cream for the year July 1944 through June 1945 has been established at 345 pounds of milk and 9 pounds of cream (containing 20 percent or less butterfat) per capita. This represents a slight increase of fluid milk and a decrease of cream as compared with consumption in 1943. This will require about 390 pounds of fluid milk with a skim milk residue of about 36 pounds. This compares with 404 pounds required to supply fluid milk and cream to civilians in 1943. The reduction in cream is in keeping with present cream quotas of WFO 79.

The requirement is based on a combination of factors--nutritional importance; consumption in 1943; consumption under provisions of WFO 79; recognition that a larger requirement would result in smaller amounts of other dairy products such as butter, evaporated milk, cheese, and nonfat dry milk solids; and the belief that a smaller requirement would be likely to require further control of fluid milk and cream distribution, possibly on a national basis.

The aggregate civilian requirement for fluid milk and cream is 50,719 million pounds of milk, equivalent to slightly more than 41 percent of estimated farm and non-farm milk production during the year July 1944 through June 1945. Although conditions are such that no formal allocations of fluid milk appear to be feasible at this time, a suggested quarterly distribution is presented in Table 16 providing for almost an equal division among quarters.

#### Butter

##### Consumption and Demand

Figures for butter consumption in the United States are given in Table 14. Civilian consumption was very low in 1943 compared with the amounts consumed before the war in this country and with the amounts consumed at

Table 16--DAIRY PRODUCTS: Civilian PER CAPITA and AGGREGATE ANNUAL REQUIREMENTS for 1944-45, by Quarters

Item	1944-45 Civilian Requirement					
	: Per :		Aggregate			
	:Capita:		:July-	:Oct.-	: Jan.-	: April-
	: Total		:Sept.	:Dec.	: Mar.	: June
	: 1	: 2	3	4	5	6
	Lbs.			Mil. Lbs.		
Milk (Fresh Fluid)	345.0	44,869	11,090	10,980	11,316	11,483
Cream (20% Fat)	9.0	1,170	291	292	293	294
Butter	12.6	1,639	414	403	404	418
Cheese, American	3.6	468	117	117	117	117
Cheese, Other	1.4	182	52	52	39	39
Milk, Condensed Whole	1.5	195	48	49	49	49
Milk, Evaporated	13.5	1,756	439	439	439	439
Milk, Condensed Skim	2.5	325	81	81	81	82
Ice Cream, Whole Milk in	9.1	1,183	428	234	169	352
" " ,40% Cream in	1.7	221	78	39	26	78
Malted Milk	.1	13	3.9	2.6	2.6	3.9
Nonfat Dry Milk Solids	2.4	312	78	78	78	78
Dried Whole Milk	.15	19.5	5.2	5.2	3.9	5.2
Cottage Cheese	1.5	195	65	39	26	65
Buttermilk, Chocolate Drink & Skim Milk	58.0	7,543	-	-	-	-



present in allied countries such as Canada and Australia. Before the war, consumption in the United States averaged nearly 17 pounds per capita, but the range of consumption was wide, varying from little or none among many low-income families to 30 or more pounds in high income groups and in heavy producing areas. It is estimated that the demand for butter would reach 19.1 pounds per capita in 1944-45 if this quantity could be made available. This is about 7.1 pounds (nearly 59 percent) more than the average per capita consumption of 12.0 pounds in 1943.

#### Problems of Distributing a Short Supply

Butter can be effectively rationed in order to distribute a short supply equitably. However, experience with rationing has indicated that demand for butter is so intense that even very high point value differentials in favor of butter substitutes have only a limited effect upon demand.

#### Determination of Requirements

Civilian requirements for butter have been fixed at 12.6 pounds per capita for the year July 1944 through June 1945. This figure is slightly higher than the current allocation of 12.3 pounds. It is believed to be the minimum necessary to meet coupon demand in all markets.

Civilian requirements constitute about 84 percent of the butter that is expected to be produced in the year July 1944 through June 1945. This requirement of 1,639 million pounds of butter for civilians should be met by careful consideration of requirements of other claimant agencies. If this amount can not be provided, further consideration should be given to increasing production through such measures as reducing butterfat content of cream, prohibiting of cream sales, restricting manufacture of dried whole milk, and reviewing the present program regulating manufacture of ice cream and other frozen dairy foods using butterfat. Requirements as established are slightly higher during the summer months of high butter production. Because of price margins allowed, there is little incentive for the trade to stockpile butter during months of high production to be held for sale during the period of low production. Furthermore, it is believed that with a larger supply at the peak season of production, a fuller distribution will be accomplished resulting in a slightly higher rate of consumption for the year.

#### Cheese

##### Consumption and Demand

The average per capita consumption of cheese in the United States was 5.6 pounds during the period 1935-39 and increased to 6.3 pounds in 1942. In 1943 it is estimated to have been 5.0 pounds, a reduction of 20 percent from 1942.

The Bureau of Agricultural Economics estimates that civilians would purchase an average of 7.4 pounds of cheese per capita in 1944-45 if it were available to them.

### Problems of Distribution

Cheese has been rationed since early 1943 at the rate of about 5.0 pounds per capita. The distribution has not been entirely satisfactory. Requirements should therefore not be reduced below this level.

### Requirements

Civilian requirements for the year July 1944 through June 1945 have been established at 5 pounds per capita, 3.6 pounds of American and 1.4 pounds other type whole milk cheese. It is believed that this is a minimum compatible with fairly successful rationing and satisfactory nutritive levels. This would constitute approximately 64 percent of the anticipated production. Requirements are the same for all quarters because of the low level of consumption permitted under rationing and because of the relative imperishability of many types of cheese.

### Condensed Milk

Condensed sweetened whole milk is rationed on a satisfactory basis and there appears to be no reason for materially changing the present rate of consumption, a total of 195 million pounds, 1.5 pounds per capita per year. Allocations as of April 1944 provide 190 million pounds for civilians at the rate of nearly 1.5 pounds per capita. Civilian requirements for July 1944 to June 1945 are fixed at approximately the present per capita rate of consumption and require 195 million pounds of condensed milk for this year.

### Evaporated Milk

#### Consumption and Demand

The consumption of evaporated milk was on the increase prior to the war. The average consumption for 1935-39 was 15.1 pounds per capita and in 1940 it was 17.4 pounds. (Table 14) Owing to the demands of the war, it has been necessary to reduce civilian consumption; in 1941 it was 16.6 pounds, and 16.9 pounds in 1942. Increased production made it possible to go back to 17.3 pounds in 1943. Demand for evaporated milk in 1944-45 is estimated by BAE to be 58.9 million cases, or 2,562 million pounds, equivalent to an average of 19.7 pounds per capita.

### Problems of Distribution

Evaporated milk is used particularly for feeding babies, young children and adults who do not have access to supplies of fresh fluid milk. This type of milk is particularly well adapted to areas where war conditions have resulted in population growth greatly in excess of fluid milk supplies, because it is relatively non-perishable and is easy and economical to transport and store. Evaporated milk is rationed; hence distribution

can be controlled to a considerable extent. Even though consumption under rationing has substantially exceeded the civilian allocation, distribution has been uneven. Reports from a number of localities have indicated shortages to the extent that supplies were inadequate to care for the needs of the special groups to whom evaporated milk is essential. Even under rationing it has been difficult to meet the needs of special groups such as infants and those with low incomes, especially in areas where fluid milk consumption is low and where the price is high, owing to the fact that the same number of ration points have been available to all consumers. Further efforts may be needed to distribute a supply smaller than the full demand equitably to those groups that need it for adequate health and vigor.

### Requirements

Civilian requirements for evaporated milk are established at 1,756 million pounds--40.4 million cases. This is about 52 percent of expected production and is equivalent to an average of 13.5 pounds per capita. This is approximately the present rate of rationing and is believed to be the minimum that can be rationed satisfactorily by existing methods. Moreover, a smaller supply will not meet the critical needs of the special classes of consumers who need this dairy product.

### Condensed Skim

Consumption of condensed skim milk has increased from an average of 2.1 pounds per capita in 1932 to an estimated 4.4 pounds in 1943. This product is used almost exclusively by food industries, partially for its unrationed sugar content. Estimates of demand are not available. Requirements for the year July 1944 to June 1945 are established at 2.5 pounds per capita in order to meet normal industrial demand. The reduction in rate of consumption is intended to permit the use of the additional skim milk for drying. The total requirement for this year is 325 million pounds compared with an estimated consumption of 577 million pounds in 1943. About the same amount should be available to civilians during each of the four quarters of this year.

### Ice Cream

#### Consumption and Demand

Consumption of ice cream increased from an average of 5.8 pounds per capita in 1932 to 16.0 pounds in 1942. WFO 8 restricts the production of ice cream, for which it is estimated there would be an average demand as high as 21 pounds per capita in 1944-45. With a supply less than 21 pounds per capita, equitable distribution would be difficult to attain, but the product is not of such importance to consumption habits that inequitable distribution need be feared.



## Requirements

The requirement for the year July 1944 to June 1945 is established at the level of consumption set by WFO 8. This will permit an average of 9.1 pounds of whole milk per capita for ice cream, together with 1.7 pounds of 40 percent cream per capita. Consumption of ice cream is highly seasonal and requirements have been established on the basis of monthly demand data. The largest supplies should be available during July, August, and September, and the smallest during the first quarter of the year.

Although these requirements will not meet civilian demand, it does not appear desirable to increase requirements in view of the ice cream consumption pattern and of the acute shortage of butter and of non-fat milk solids.

## Malted Milk

### Consumption and Demand

Consumption of malted milk is very small compared with that of many other dairy products, although it has increased from 11 million pounds in 1932 to 29 million pounds in 1942. In 1943 consumption was about 21 million pounds. Demand for 1944-45 is estimated at 31 million pounds--equivalent to an average of .24 pounds per capita.

## Requirements

The requirement for July 1944 to June 1945 has been established at 13 million pounds, slightly less than the pre-war level and substantially below the anticipated level of demand. This provides an average of about .1 pounds of malted milk per capita, divided equally among the four quarters. Reduction of civilian consumption is necessary because of the importance of other claims to dried milk. While shortages will develop and available supplies will probably be inequitably distributed, this is not believed to be of sufficient importance to try to prevent it.

## Nonfat Dry Milk Solids

### Consumption and Demand

Nonfat dry milk solids are used almost entirely by food processors. Since the war started, there has been a growing realization of the nutritive value of nonfat dry milk solids. It is estimated that in 1932 about 149 million pounds were used for food in the United States. Consumption by civilians reached a peak of 324 million pounds in 1941. Since then war demands and reduced production have caused reductions in civilian supplies, so that in 1943 consumption was down to 182 million pounds. Consumption has varied from 1.2 pounds per capita in 1932 to 2.4 pounds in 1941 and to 1.4 pounds in 1943.



### Problems of Distribution

Supplies of nonfat dry milk solids are so short that it might become necessary to ration nonfat dry milk solids among domestic users in order to secure equitable distribution of this highly nutritious product.

### Requirements

To maintain the nutritive levels and to supply nonfat dry milk solids for essential food uses, the civilian requirements have been established at 312 million pounds. The total of 312 million pounds amounts to 2.4 pounds per capita. This is equally divided between roller and spray process nonfat dry milk solids.

Although the baking industry alone could use 600 million pounds of nonfat dry milk solids to increase the nutritional value of bread and other bakery products, the suggested distribution of the requirement of 312 million pounds is as follows:

	<u>Million Pounds</u>
Baking industry .....	190
Prepared flours.....	15
Chocolate and confections.....	8
Institutional cooking, soups, etc....	9
Sausage.....	20
Ice cream.....	30
Milk drinks.....	20
Home use.....	10
Miscellaneous.....	10
Total.....	312

### Dried Whole Milk

### Consumption and Demand

Dried whole milk also is used largely by food industries. Consumption increased from 9 million pounds in 1932 to 23 million pounds in 1941. It is estimated that civilian consumption reached 35 million pounds in 1943.

### Requirements

Requirements for the year July 1944 to June 1945 are established at 19.5 million pounds. Larger consumption would be likely to reduce production of nonfat dry milk solids, butter, and evaporated milk. Smaller amounts for civilians would interfere with food industries dependent on dried whole milk and might necessitate some type of distribution control among users.

## Cottage and Other Skim Milk Cheeses

### Consumption and Demand

Consumption of cottage and other skim milk cheeses has increased considerably since 1932 when it totaled 164 million pounds--about 1.3 pounds per capita. In 1941 and 1942 consumption reached 257 and 263 million pounds, respectively, and in 1943 had dropped to 176 million pounds. These cheeses are not rationed, unless the butterfat content is over 5 percent.

### Requirements

In accordance with WFO 79 and in order to increase the amount of fluid milk available, requirements of cottage and other skim milk cheese for the year July 1944 to June 1945 are established at 195 million pounds, equivalent to an average of 1.5 pounds per capita. Production and distribution of cottage cheese in large milk markets supplying about half the United States civilians will be subject to control under WFO 79. The manufacture of cottage cheese is a satisfactory method for utilizing surplus skim milk.

## Skim Milk Drinks

### Consumption and Demand

Consumption of buttermilk, chocolate milk and skim milk drinks has increased from an average of 52.5 pounds per capita in 1932 to an estimated 58.8 pounds in 1943. The nutritive value of many of these products is high, but distribution among individuals is highly uneven. In markets where WFO 79 is in effect, handlers are expected to distribute buttermilk and chocolate milk equitably along with fluid milk.

### Requirements

Civilian requirements for the year July 1944 to June 1945 are set at 58.0 pounds per capita, requiring 7,543 million pounds of skim milk. This is a small reduction compared with 1943 in keeping with the provisions of WFO 79. The reduction is small in recognition of the nutritive value of these products and the desirability of meeting demand in so far as possible.

## FATS AND OILS

(Prepared by George A. Sallee)

### Edible

#### Summary

Fats and oils contribute importantly to the palatability of the diet. Some fatty acids are biologically essential to all individuals, and heavy workers need fat especially because it furnishes calories in highly concentrated form.

Consumption of fats and oils rose gradually until the restriction of imports and increased demands resulting from the war reduced the available civilian supply. Since 1930 civilian per capita consumption has varied from a low of 45.8 pounds in the depression year of 1932 to a high of 50.9 pounds in 1941. As a result of wartime conditions civilian consumption in 1943 fell to 45.9 pounds per capita, which is just 0.1 pound above the depression level of 1932.

Requirements for the fiscal year 1944-45 have been computed to provide a household fat ration of 26 pounds per capita, including butter. Allowances for industrial and institutional use, for heavy workers and sick persons, and for losses to the rationing system bring the requirement figure to 44 pounds per capita--12.6 pounds for butter, 3.4 pounds for margarine, 13.5 pounds for lard, 14.5 pounds for shortening and other edible oils. The aggregate requirements are butter, 1,639 million pounds; margarine, 456 million pounds (fat content); lard, 1,755 million pounds; and shortening and other edible oils, 1,886 million pounds.

These requirements represent minimum needs under reasonably equitable distribution. Without effective control of distribution a larger quantity would be needed in order to assure availability of the necessary minimum requirements to all consumers.

#### Significance of Fats and Oils to the Food Supply

Fats are essential to the diet because certain fat components (fatty acids) are required by the body. The amounts needed are lower than the quantities that have been consumed historically. When food is scarce the level of fat consumption is generally low; but diets in this country, even those very inadequate in other respects, have characteristically contained more fat than diets of populations with low living standards elsewhere. In fact, the diets of low-income families in southeastern states, particularly those of Negroes, have been high in fat, however poor in milk, meat, eggs, fruits, and vegetables.

Fats are important, then, to our food habits and for maintaining the quality of the diet; they improve the texture and flavor of prepared foods, especially the cereal products. Their shortening value is another



reason for their importance, especially when cereal consumption is necessarily increased, as at present. The feeling of satisfaction that is associated with foods having high fat content is thought to be due in part to the fact that they are digested and absorbed slowly and thus have "staying power." Fats also increase the efficiency with which the body uses thiamine, an effect that is especially important for families with diets low in meat.

These facts and the additional one that they have a high caloric value--two and one-fourth times that of protein or carbohydrates--accounts for the need for liberal fat allowances in the high-calorie diets, such as those of miners, loggers, and others doing unusually heavy work. These groups customarily eat very large quantities of meats, and when meat consumption must be substantially lowered it is doubly important to protect the fat consumption.

Fortified margarine is important as a source of vitamins A and D. With higher consumption of cereals and smaller supplies of butter, it is advantageous to have adequate quantities of margarine as a spread for bread.

#### Consumption and Demand

Consumption of visible edible fats and oils, other than butter, averaged 31.3 pounds per capita annually during 1935-39 and reached the high level of 35.0 pounds in 1941, as shown in table 17.

Table 17.--EDIBLE FATS AND OILS: Civilian PER CAPITA  
and AGGREGATE ANNUAL CONSUMPTION for Specified  
Periods and Estimated DEMAND for 1944-45

Item	:	:	:	:	:	:	Estimated
	:	:	:	:	:	:	civilian
	:	:	:	:	:	:	demand
	:	1935-	1941	1942	1943	:	1944-45
	1932	39	1/	1/	1/ 2/	3/	
	1	2	3	4	5	6	
- - - - - Per capita (pounds) - - - - -							
Margarine (fat content)	1.3	2.3	2.2	2.2	3.2	4.9	
Lard	14.3	10.9	14.1	13.5	14.5	15.0	
Shortening and other oils	12.1	18.1	18.7	17.0	16.2	21.0	
Total	27.7	31.3	35.0	32.7	33.9	40.9	
Butter (retail weight)	18.1	16.7	15.9	15.6	12.0	12.7	4/
Total including butter	45.8	48.0	50.9	48.3	45.9	53.5	

Continued



Table 17.—EDIBLE FATS AND OILS: Civilian PER CAPITA  
and AGGREGATE ANNUAL CONSUMPTION for Specified  
Periods and Estimated DEMAND for 1944-45—Continued

Item	:	:	:	:	:	:	Estimated
	:	:	:	:	:	:	civilian
	:	1935-	1941	1942	1943	:	demand
	1932	39	1/	1/	1/ 2/	1944-45	3/
	1	2	3	4	5	6	
- - - - - Aggregate (millions of pounds) - - - - -							
Margarine (fat content)	166	323	293	295	412	637	
Lard	1,795	1,419	1,875	1,784	1,883	1,951	
Shortening and other oils	1,509	2,343	2,490	2,254	2,093	2,731	
Total	3,470	4,085	4,658	4,333	4,388	5,319	
Butter (retail weight)	2,275	2,170	2,105	2,067	1,550	1,652	4/
Total including butter	5,745	6,255	6,763	6,400	5,938	6,958	

1/ The total civilian consumption, 1941-43, obtained by subtracting from total disappearance, the military, Lend-lease, and other non-civilian takings.

2/ Preliminary.

3/ Based on information obtained from BAE and assumed civilian supply of 12.7 pounds of butter per capita.

4/ Assumed supply of butter used in determining demand for other fats and oils.

SOURCE: Disappearance—THE NATIONAL FOOD SITUATION, April 1944.

In the depression year of 1932 it was down to 27.7 and in 1941 it was up to 35.0 pounds. When visible fats, including butter, are considered, consumption in 1932 was down to 45.8 pounds; in 1935-39 it averaged 48.0 pounds; and in 1941, the year of highest consumption to date, it was 50.9 pounds. It should be noted that, although 1932 was a year of relatively low consumption of total fats and oils and of fats and oils other than butter, it was a year of relatively high butter consumption.

Civilian demand for visible edible fats and oils, other than butter—assuming continuation of the present level of consumer incomes and retail prices, no rationing, and a supply of 12.6 pounds of butter—is estimated

at approximately 4.9 pounds of margarine (fat content), 15.0 pounds of lard, and 21.0 pounds of shortening and other edible fats and oils, or a total of 40.9 pounds.

#### Determination of Requirements

The civilian requirement is based on the objective of providing a household ration of 26 pounds per capita of visible edible fats and oils, including butter. When the supply of other foods is taken into consideration this is the amount estimated to be necessary for a moderately active worker and for maintaining present standards of health. To this must be added the industrial and institutional requirements, special allotments for extra heavy workers and persons afflicted with tuberculosis and diabetes, and home consumption of farm-produced butter and lard.

An additional objective of the requirement is the provision of a minimum of 16.8 pounds per capita, retail weight, of butter and margarine, the amount believed to be necessary in order to provide sufficient spreads to maintain the desired level of consumption of breads. If less than the anticipated amount of butter is made available the margarine requirement will be increased accordingly. Conversely, if the butter supply is more than anticipated, the margarine requirement may be reduced. The requirement is equal to approximately 85 percent of pre-war consumption. Per capita consumption of these two products (retail weight) averaged 19.7 pounds in 1932, 19.6 pounds in 1935-39, and 19.3 pounds in 1940.

Movement subject to control.—It is estimated that (1) 95 percent of the urban population and 25 percent of the farm population will buy fats and oils from that portion of the supply subject to control; (2) supplementary requirements for heavy workers and non-hospitalized patients afflicted with diabetes or tuberculosis are as shown; (3) the industrial users' requirement is 95 percent of the reported 1942 use; and (4) the institutional users' requirement is 75 percent of their reported 1942 use.

Movement not subject to control.—It is estimated that 80 percent of the farm-churned butter and 80 percent of the farm-rendered lard will be consumed on the farms where produced or locally and, therefore, that distribution of this amount is not subject to effective control.

On the basis of the above assumptions, the calculation of civilian requirements for visible edible fats and oils is as follows:

Table 18.--EDIBLE FATS AND OILS: Determination of Civilian REQUIREMENT for 1944-45

Item	Millions of pounds, retail basis
Controlled movement	
Household ration	2,744
Special needs groups	373
Industrial use	1,452
Institutional use	646
Total controlled movement	5,215
Non-controlled movement	
Farm-churned butter	250
Farm-rendered lard	385
Total non-controlled movement	635
Total requirement	5,850

Considering prospective available supplies and past consumption patterns, the civilian requirement should be distributed among the various food products as follows:

Item	Millions of pounds
Butter .....	1,639
Margarine (oil content, 456 million pounds) .....	570
Lard .....	1,755
Shortening and oils .....	1,886
Total .....	5,850

Quarterly allocations.--Although in the past fats and oils may have been purchased in greater quantity during one season of the year than another, the present request is for approximately the same amount in each of the four quarters. Under existing conditions of relatively full and continuous employment and non-seasonally adjusted retail price ceilings, and with controls which will restrict distribution to approximately 80 percent of the demand, there apparently is little need for requesting a greater allocation of fats and oils, in total, in one quarter than in another.

The requested allocation of fats and oils for margarine is slightly larger during the two winter quarters, since this is the period when butter supplies are expected to be the smallest. The requested per capita

allocation of lard, shortening, and oils, together, is the same in all four quarters. The requirements by quarters are given in table 19.

Table 19.--EDIBLE FATS AND OILS: Civilian PER CAPITA and AGGREGATE ANNUAL REQUIREMENTS for 1944-45 by Quarters

Item	: : Total : : 1 :	: : July- : Sept. : : 2 :	: : Oct.- : Dec. : : 3 :	: : Jan.- : Mar. : : 4 :	: : Apr.- : June : : 5 :
- - - - - Per capita (pounds) - - - - -					
Margarine (fat content)	3.4	0.8	0.9	0.9	0.8
Lard	13.5	3.5	3.5	3.5	3.0
Shortening and other edible oils	14.5	3.5	3.5	3.5	4.0
Total	31.4	7.8	7.9	7.9	7.8
Butter (retail weight)	12.6	3.2	3.1	3.1	3.2
Total	44.0	11.0	11.0	11.0	11.0
- - - - - Aggregate (millions of pounds) - - - - -					
Margarine (fat content)	456	107	120	121	108
Lard	1,755	453	455	456	391
Shortening and other edible oils	1,886	453	455	456	522
Total	4,097	1,013	1,030	1,033	1,021
Butter (retail weight)	1,639	414	403	404	418
Total	5,736	1,427	1,433	1,437	1,439

### Inedible--Soap <sup>1/</sup>

#### Importance of Soap

Adequate use of soap and the maintenance of a reasonable degree of cleanliness are widely recognized as important aids to the prevention of the spread of infectious diseases. Moreover, in a number of industries where workers must handle certain toxic materials a sufficient use of soap is an aid in the prevention of dermatitis and other harmful effects. Cleanliness is closely associated with civilian morale, and the provision of adequate supplies of soap, therefore, is of considerable importance from this standpoint.

<sup>1/</sup> Includes toilet, laundry, and hand-paste soaps but excludes soap used for industrial non-detergent purposes.



## Consumption of Soap

Disappearance of fats and oils in the production of soap for civilians increased rather consistently from 1931 to 1941; but because of a shortage of raw materials induced by the war, it declined during 1942 and the early part of 1943 (table 20).

Table 20.--INEDIBLE FATS AND OILS: Civilian PER CAPITA and AGGREGATE ANNUAL CONSUMPTION in SOAP for Specified Periods

Item	1932 1/	1935- 39 1/	1941	1942	1943 2/
	1	2	3	4	5
Per capita (pounds)	11.6	12.1	16.4	13.9	12.7
Aggregate (millions of pounds)	1,457	1,566	2,180	1,834	1,645

1/ Includes an undetermined but very small amount for the armed forces.

2/ Preliminary.

Average annual per capita disappearance was 12.1 pounds in 1935-39, 16.4 pounds in 1941, and 12.7 pounds in 1943. The high level of 16.4 pounds reached in 1941 undoubtedly includes some accumulation of stocks which subsequently were used in 1942 and 1943, and to this extent the per capita figure for 1941 probably is high, while those for 1942 and 1943 are low. Since late 1943, however, larger amounts of raw materials have been made available to the soap manufacturers. Recent allocations have permitted use of fats and oils at a higher rate (14.2 pounds) than in any other year except 1941.

## Problems of Distribution

Variations in consumer needs because of differences in amounts of home laundering, occupations, climatic conditions, and hardness of water; the interchangeability, within wide limits, of one kind of soap for another; and the multiplicity of types of establishments selling soap would make the rationing of civilian soap an extremely difficult and complicated task. Because of these conditions, the policy of the War Food Administration has been to allocate sufficient fats and oils for civilian soap production to maintain reasonably equitable distribution without adoption of soap rationing.

## Determination of Requirements

The fats and oils requirement for civilian soap for 1944-45 is based on continuation of the per capita supply at the level of recent allocations. While this requirement is larger than consumption in recent pre-war years, the amount is believed to be necessary in order to prevent serious maldistribution and the resulting need for adoption of some form of soap rationing.

The per capita and aggregate requirement, by quarters, is shown in table 21.

Table 21.--INEDIBLE FATS AND OILS: Civilian PER CAPITA and AGGREGATE ANNUAL REQUIREMENT for SCAP for 1944-45, by Quarters

Item	: : : :	Total	: : : :	July- Sept.	: : : :	Oct.- Dec.	: : : :	Jan.- Mar.	: : : :	Apr.- June
	:	1	:	2	:	3	:	4	:	5
Per capita (pounds)		14.2		3.5		3.6		3.5		3.6
Aggregate (mil- lions of pounds)		1,847		453		468		456		470

## GRAINS

(Prepared by W. S. Baxter)

### Summary

Grains are a highly important source of cheap and nutritious foods. For low-income families in the South, cereal products are in a real sense the "staff of life", contributing the major part of the food energy and of several important vitamins and minerals in their diet. But foods derived from grain are essential to all income classes, both from the standpoint of food habits and nutrition. They are eaten customarily with every meal. In the average diet they supply more calories, proteins, carbohydrates, and iron than any other group of foods and they are among the most important sources of phosphorous, thiamine, niacin, and riboflavin, due partly to flour and bread enrichment.

Consumption of cereal products as a whole has been increasing slightly during the last few years. Demand is not greatly affected by changes in income, but the form in which the products are purchased varies substantially with incomes. As family income increases, more bakery goods are purchased and correspondingly smaller amounts of flour are used for home baking.

Supplies of wheat, rye, oats, soya flour, flakes and grits are adequate to meet total food demands provided sufficient amounts of these grains move off farms into regular commercial channels and too much grain is not diverted for non-food uses.

The supplies of rice, corn, and barley, however, have been inadequate to meet food and beverage demands during the past year. The trend of consumption of corn products has been upward and it is estimated by some that demand for corn products for food purposes might be as high as 84 pounds per capita in the period July 1, 1944 to June 30, 1945, and with present price relationships the supply is not adequate to meet such a demand. Requirements have been established at 73.4 pounds per capita, which should be sufficient to provide satisfactory distribution without serious inroads on feed supplies.

Consumption of rice has ranged around 6 pounds per capita for a number of years and requirements for fiscal 1944-45 have been established at 6.2 pounds per capita. It should be possible to meet this requirement without reducing stocks at the end of the period below a safe level if export shipments are held near present levels.

Civilian requirements for cereals in terms of pounds per capita (primary distribution weight) are as follows:

Wheat.....	226.4
Rye.....	5.0
Rice (milled).....	6.2
Corn.....	73.4
Oats.....	8.2
Barley.....	2.5
Soya beans for flour, etc.....	3.3



## Wheat

### Dietary Significance

Wheat is preferred to other cereals by the greater part of the population, as the high consumption clearly indicates. Since the food habits of Americans have singled out highly milled wheat flour in preference to whole wheat, white bread and flour have been enriched to secure better nutrition. The increments to enrichment levels bring about a substantial improvement in the ordinary diet. Enrichment at the new levels supplies about one-fifth of the daily supply of thiamine, one-seventh of the iron, and approximately one-eighth of the riboflavin and niacin. Wheat products can be used in a wide variety of ways, and are a good extender of scarce foods.

### Consumption and Demand (See Tables 22 and 23)

Wheat is used principally for seed, feed and food, with the latter accounting for one-half to two-thirds of the total. Ordinarily only a small portion of the wheat supply is used for industrial purposes such as: starch in the laundry and textile industries, flour for a core binder in foundries, paste for bookbinding and paper hanging, and the raw material for the manufacture of alcohol and potable spirits. In the past year, unusually large quantities of wheat have been used for alcohol and animal feed.

The total prospective supply of wheat, without imports, is 1,114 million bushels for 1944-45. With estimated use of 200 million bushels of wheat for feed, 85 million bushels for alcohol, 83 million bushels for seed, and a minimum carryover of 250 million bushels, the supply will be adequate to meet civilian demands for food, provided a sufficient amount of the wheat moves off the farm into regular commercial channels and prices and government programs do not cause excessive quantities to be used for feeds.

Due to shortages of other foods, the per capita consumption of wheat has been increasing over the past few years, (see Table 22) and is expected to rise slightly in fiscal 1944-45. Factors which tend to restrict an increase in consumption of wheat are the limitations on the supply of fats and sugar for home baking; rationing of butter, margarine, jams and jellies; and the tendency of consumers to substitute higher priced foods when incomes rise.

Since early 1942, there has been an increase in civilian consumption of bakers' flour and a decrease in the consumption of family flour.

### Requirements

The requirement for wheat is designed to meet in full the estimated 1944-45 demand. It has been fixed at 490.7 million bushels, or an average of 226.4 pounds per capita. (Table 24)



Table 22--CEREALS: Civilian PER CAPITA ANNUAL CONSUMPTION for Specified Periods, and Estimated DEMAND for 1944-45

Item	: Apparent Civilian Consumption 1/ : Estimated					
	: Civilian					
	: 1932	: 35-39	: 1941	: 1942	: 1943 2/	: Demand 44-45
	: 1	: 2	: 3	: 4	: 5	: 6
	----- Pounds 3/ -----					
Wheat 4/	225.1	221.4	217.1	219.5	225.9	226.4
Flour	221.0	217.5	212.5	215.0	221.5	221.9
White	211.0	208.0	201.8	203.0	208.0	208.3
Whole	3.5	3.1	2.9	3.0	3.1	3.1
Semolina	6.5	6.4	7.8	9.0	10.4	10.5
Cereals	4.1	3.9	4.6	4.5	4.4	4.5
Corn 4/	59.1	50.6	59.1	68.0	67.7	84.0
Meal and flour	35.1	32.1	30.4	29.5	32.1	38.0
Hominy and grits	1.8	2.3	2.9	3.3	3.5	4.9
Cereal	4.5	3.2	4.3	4.7	4.5	4.8
Starch	1.7	2.2	2.5	2.4	2.8	3.1
Sirup	7.9	10.5	11.4	19.3	16.5	21.1
Sugar	8.1	4.3	7.6	8.8	8.3	12.1
Rye	4.0	3.2	4.2	4.8	4.9	5.0
Barley 4/	5.3	1.7	1.8	1.9	2.2	2.5
Oats	10.1	6.8	7.1	8.0	8.1	8.2
Soya beans for flour, etc. 5/		.2	.4	.5	.9	3.3
Buckwheat	.6	.4	.3	.3	.3	.5
Grain Sorghum	-	-	-	-	-	1.5
Rice (Milled) 6/	6.0	5.8	5.2	6.2	5.8	6.2
Peanuts for flour	-	-	-	-	5/	.1
Cottonseed for flour	-	-	-	-	5/	.1

1/ Based on data from National Food Situation except for corn sugar and sirup.

2/ Preliminary.

3/ Primary distribution weight.

4/ Does not include grain used in fermented malt beverages.

5/ Practically none.

6/ Includes heads, second heads, and screenings used in fermented malt beverages.

Table 23--CEREALS: Civilian AGGREGATE ANNUAL CONSUMPTION for Specified Periods, and Estimated DEMAND for 1944-45

Item	: Apparent Civilian Consumption 1/ : Estimated : 1932 : 35-39 : 1941 : 1942 : 1943 2/ Demand 44-45					
	1	2	3	4	5	6
	- - - - - Million Bushels 3/ - - - - -					
Wheat 4/	471.0	479.0	480.0	484.0	488.0	490.7
Flour	462.4	470.6	470.0	474.2	478.5	480.9
White	441.5	450.2	446.4	447.7	449.3	451.5
Whole	7.3	6.7	6.4	6.6	6.7	6.7
Semolina	13.6	13.7	17.2	19.9	22.5	22.7
Cereals	8.6	8.4	10.0	9.8	9.5	9.8
Corn 4/	132.4	126.3	139.9	160.5	156.5	195.0
Meal and flour	78.7	74.3	72.0	69.7	74.3	83.3
Hominy and grits	4.2	5.3	6.9	7.9	8.1	11.3
Cereal	10.1	7.5	10.1	11.1	10.3	11.2
Starch	3.7	5.0	5.8	5.6	6.4	7.2
Sirup	17.7	24.4	27.1	45.5	38.2	49.0
Sugar	13.0	9.8	18.0	20.7	19.2	28.0
Rye	8.9	7.3	10.0	11.3	11.4	11.5
Barley 4/	13.8	4.7	5.1	5.5	6.5	6.8
Oats	39.7	27.8	29.4	33.0	33.0	33.3
Soya beans for flour, etc. 5/		.4	.9	1.1	1.9	7.2
Buckwheat	1.5	1.0	.8	.8	.8	1.3
Grain Sorghum	-	-	-	-	-	3.5
- - - - - Million Pounds 3/ - - - - -						
Rice (Milled) 6/	753.4	752.7	698.3	811.9	750.0	806.3
Peanuts for flour	-	-	-	-	.1	12.0
Cottonseed for flour	-	-	-	-	.1	18.0

1/ Based on data from National Food Situation except for corn sugar and sirup.

2/ Preliminary.

3/ Primary distribution weight.

4/ Does not include grain used in fermented malt beverages.

5/ Practically none.

6/ Includes heads, second heads, and screenings used in fermented malt beverages.

Table 24--CEREALS: Civilian PER CAPITA and AGGREGATE ANNUAL REQUIREMENTS for 1944-45, by Quarters

Item	1944-45 Civilian Requirement					
	Per	Aggregate				
	Capita	: July-	: Oct.-	: Jan.-	: April-	
		: Total	: Sept.	: Dec.	: Mar.	: June
	: 1	2	3	4	5	6
	Lbs. <u>1/</u>	- - - - - Million Bushels <u>1/</u>				
Wheat <u>2/</u>	226.4	490.7	122.6	122.7	122.7	122.7
Flour	221.9	480.9	120.2	120.2	120.3	120.2
White	208.3	451.5	112.8	112.9	112.9	112.9
Whole	3.1	6.7	1.7	1.6	1.7	1.7
Semolina	10.5	22.7	5.7	5.7	5.7	5.6
Cereals	4.5	9.8	2.4	2.5	2.4	2.5
Corn <u>2/</u>	73.4	170.9	38.9	51.3	40.8	39.9
Meal and flour	36.0	84.0	17.6	28.6	19.3	18.5
Hominy and grits	3.8	8.9	1.9	3.0	2.0	2.0
Cereal	4.7	10.8	2.7	2.7	2.7	2.7
Starch	3.0	7.0	1.7	1.8	1.8	1.7
Sirup	17.6	40.9	10.2	10.3	10.2	10.2
Sugar	8.3	19.3	4.8	4.9	4.8	4.8
Rye	5.0	11.5	2.8	2.9	2.9	2.9
Barley <u>2/</u>	2.5	6.8	1.7	1.7	1.7	1.7
Oats	8.2	33.3	8.3	8.3	8.4	8.3
Soya beans for flour	3.3	7.2	1.8	1.8	1.8	1.8
Buckwheat	.5	1.3	.3	.3	.4	.3
Grain Sorghum	1.5	3.5	.8	.9	.9	.9
		- - - - - Million Pounds <u>1/</u>				
Rice (Milled) <u>3/</u>	6.2	806.3	100.0	338.6	250.0	117.7
Peanuts for flour	.1	12.0	3.0	3.0	3.0	3.0
Cottonseed for flour	.1	18.0	4.5	4.5	4.5	4.5

1/ Primary distribution weight.

2/ Does not include grain used in fermented malt beverages.

3/ Includes milled rice (second heads and screenings) used in brewing, as the exact quantity is not known. This rice has always been included in data on rice consumption.



## Corn

### Dietary Significance

Corn is especially important as a food in the South where large quantities are consumed in the form of grits, pone, and bread. In that part of the country the use of corn is firmly established in food habits, and a shortage would result in general discontent due either to lack of knowledge about substitutes or to unwillingness to accept them. Cornmeal is a very good and cheap source of calories and supplies fair amounts of protein and iron.

### Consumption and Demand (See Tables 22 and 23)

It is estimated that only about 5 percent of the corn crop is utilized directly for human food. The quantity of grain going into products for civilian food consumption has had an upward trend. The trend of consumption of cornmeal and flour has fluctuated, being down in 1942 and up in 1943. Decreases have been made up by increased consumption of other corn food products, notably grits, starch, sirup and sugar. Rationing of other foods causes an increased demand for corn. It is estimated that the demand for corn products for food purposes might be as high as 84 pounds per capita in fiscal 1944-45. Although this appears to be an increase of about 16 pounds over consumption in 1942, and 25 pounds over that of 1941, in reality the increase is very small. In the historical data on consumption, published by the Bureau of Agricultural Economics, the data on cornmeal does not take into account the meal ground by small crossroad mills except that which is custom milled for use on farms where grown. This incomplete coverage of the dry corn milling industry amounts to from 10 to 20 million bushels.

At present it is more profitable to feed corn to hogs than to sell it to corn millers. Consequently the heavy demands for corn products for industrial uses and for civilian food supplies have not been met.

### Problems of Distributing a Short Supply

Rationing of corn products is not feasible, since such a large portion of the corn consumed as food is in the form of meal. This is a product of the dry milling process. In the first half of 1943 only about one-half of the total United States production of cornmeal was ground by commercial or industrial mills. The remaining portion of the meal was ground by an estimated 20,000 crossroad mills. Farmers brought their corn to these mills and had it ground, and there is no method of controlling production or distribution of these products.

Consumption of corn products varies greatly according to geographic areas and racial groups. The annual consumption of corn meal is less than one pound per capita in most of the North Atlantic states and over 50 pounds per capita for the Negroes of the South. This wide variation in average consumption is another factor tending to complicate any rationing program. Another factor which would add to the complexity of rationing corn products is the number of products made from corn and the many uses of these products.



### Requirements (See Table 24)

Corn production is expected to be about the same as last year's crop and sufficient quantities will be available to meet civilian food requirements in fiscal 1944-45, provided that corn moves off the farm into regular commercial channels in sufficient amounts to satisfy the needs of the corn milling industry. However, this seems to be unlikely unless corn ceiling prices are increased or some effective action is taken to divert corn into commercial channels. Since corn when eaten directly provides civilians with approximately 3.5 times more calories than when fed to hogs, 12 times more than when fed to broilers, and 16 times more than when fed to fatten beef cattle, adequate quantities should be made available for essential civilian foods.

Civilian food requirements for corn have been established at 170.9 million bushels, which is the equivalent of 73.4 pounds per capita. This is somewhat below the maximum estimated demand, but is above the amount of corn that has been consumed by civilians in the past few years. It is a large enough quantity to provide satisfactory distribution of corn products to civilians in fiscal 1944-45 without curtailing significantly supplies of corn for animal feed.

### Rice

#### Dietary Significance

The food habits of certain sections of the population have established rice as an integral part of the diet peculiar to them. Rice is consumed in large quantities by the people of the southeastern coastal plain, where it is usually cooked with fish, and by persons of Oriental or Spanish-American ancestry. It is the necessity for supplying these groups with sufficient quantities of rice that must be considered in discussing the significance of this commodity. Although there are many satisfactory--even nutritionally preferable substitutes for rice, it is difficult to change the consumption habits of the groups which depend upon rice as a dietary staple. Hence, shortages in the areas in which they live are likely to produce real distress.

In other areas and among other population groups rice is used primarily for variety as a substitute for potatoes, and shortages are not likely to have serious repercussions so long as substitutes remain in good supply.

#### Consumption and Demand (See Tables 22 and 23)

For the past 10 years, with the exception of 1941, the average annual consumption of rice in the United States has been about 6 pounds per capita. This average, however, does not reflect the importance of rice in the diet in certain sections of the country. On a state basis

the per capita consumption of rice ranges from less than one-tenth pound in New Hampshire and Vermont to 27 pounds in South Carolina and over 40 pounds in Louisiana.

Rice is a cheap food and is used as a substitute for, or as a supplement to scarce foods. It is estimated by some that civilian demand in fiscal 1944-45 would reach 9 million pockets or an average of 7 pounds per capita, if the supply were adequate. This, however, seems to be too high. A demand of 6.2 pounds per capita appears to be more realistic.

#### Problems of Distribution

Rice is produced in Louisiana, Arkansas, Southeastern Texas and California, and the regions of major consumption besides these states are South Carolina, Florida, and Georgia.

War Food Order 10 was issued in order to assure an adequate supply of rice for residents of American Territories and to make supplies available to the U. S. Armed Forces. This set-aside order restricted the amount of rice available to civilians. An attempt was made to obtain an equitable distribution on the basis of states, by the provision in Amendment 2 of the Order which limited the quantity of milled, undermilled, or brown rice which any first owner delivered to persons within any state or the District of Columbia during the 1943-44 crop year. This limitation was based upon the quantity of rice delivered by a first owner to any given state in the 1941-42 crop year. At the present time no amendment has been issued which extends these provisions to the 1944-45 crop year. Since the provisions of the amendment applied only to first owners, subsequent owners could reshipe the rice to any state; hence, the restriction was not very effective in controlling distribution. Any new order or amendment should be made to apply as far as feasible to other than first owners.

in

Point rationing/connection with a state allotment plan would be too complicated to be feasible. Some modification of the state allotment plan as set up in Amendment 2 of War Food Order 10 appears to be the most workable method of controlling distribution.

#### Requirements (See Table 24)

The civilian requirement for rice established for fiscal 1944-45 is 6.2 pounds per capita or 806 million pounds of milled rice. This is equal to the estimated demand. It is believed that supplies will be adequate to meet this requirement unless unusually large demands are made on the United States for rice for export and lend-lease.

The consumption of milled rice is much heavier during the winter months than during the spring and summer. Last year the quarterly civilian disappearance of milled rice was about as follows:

July-Sept.	12 percent
Oct.-Dec.	42 "
Jan.-Mar.	31 "
April-June	15 "

On this basis the quarterly requirements would be:

First Quarter	100.0 million pounds
Second "	338.6 " "
Third "	250.0 " "
Fourth "	117.7 " "
Total 1944-45	806.3 " "

#### Rye

##### Consumption and Demand (See Tables 22 and 23)

Rye is used principally in flour and breakfast foods, where it adds variety to the diet and supplies about the same nutrients as whole wheat.

The supply of rye during the 1944-45 crop year should be adequate to meet the slightly increased demand for rye flour for civilian consumption, unless the strong demand for feed should cause an unexpected increase in the demand for rye. It is expected that 8 to 10 million bushels of rye will be used for industrial alcohol and about 23 to 25 million bushels will be used for feed.

##### Requirements (See Table 24)

Although the quantity of rye used for feed is at a high level, indications are that there will be sufficient rye to meet the civilian food demand of 11.5 million bushels or an average of 5 pounds per capita.

#### Barley

##### Consumption and Demand (See Tables 22 and 23)

Less than one percent of the barley consumed in the United States each year is used for civilian food purposes. The nutrients in barley are similar to those in rice. Pearled barley and barley flour constitute a small portion of the food use. The remainder is in the form of malt and malt extract for food use as such, and for flavoring in breakfast foods. A larger amount of barley (approximately 10 times as much) goes into the manufacture of fermented malt beverages, which is not strictly a food use. The principal use of barley, however, is for livestock feeding.



### Requirements (See Table 24)

The fiscal 1944-45 civilian requirement for barley for strictly food uses has been established at 2.5 pounds per capita, the same as the estimated consumption during the year 1943-44. This will require only 7 million bushels of grain as compared to about 80 million bushels for civilian non-food uses and industrial alcohol and 223 million bushels for feed.

### Oats

#### Consumption and Demand

The principal use of oats is for livestock feed; less than 4 percent of the domestic disappearance of oats goes for food purposes. Oats, when consumed by humans, are usually in the form of oat meal, which is a cheap and nourishing food. Oat meal adds variety to breakfast cereals and supplies somewhat more of several nutrients than the other grains. Its principal food use is breakfast food, but in recent years due to advertising campaigns and somewhat to the shortage of some foods, the consumption of oat meal has been increasing and it is being used more extensively in cookies and as a "meat extender" in meat loaves, patties, and croquettes. (See Tables 22 and 23)

#### Requirements

Oats for food use must be of high quality and carefully selected. They therefore bring a higher price than oats for feed, and consequently there should be no difficulty in moving the required amounts of this grain off farms, if grain of the proper quality can be found. Since the supply is expected to be adequate to meet civilian demands, the requirement for oats has been designed to equate demand and supply in 1944-45 and is set at 33.3 million bushels, or an average of 8.2 pounds per capita. (See Table 24)

### Soy Beans

#### Dietary Significance

Soybean products furnish efficient protein in a very economical form and are valuable also as sources of iron and the B vitamins (thiamine, niacin, and riboflavin).

Soy products are comparatively new arrivals on the American table, but they have a wide range of possible uses. Of the 1943 civilian food use of soya flour, grits, and flakes, about 38 percent was used in bakery products such as bread, doughnuts, crackers, etc; 32 percent in meat processing; 22 percent for household use; 9 percent in cereal preparations and candy; and less than one-tenth of a percent in macaroni and other paste products. With sufficient promotional activity by commercial and governmental agencies, it should not be difficult to increase consumption. Higher consumption is advantageous, particularly because of the riboflavin and other B vitamins that would be supplied in this way. Riboflavin is frequently a limiting factor in the total diet, especially in low income groups where milk consumption is low.



### Consumption and Demand (See Tables 22 and 23)

Civilian consumption of soya flour, flakes, and grits in 1943 was about .9 pounds per capita compared with a domestic disappearance of .5 pounds per capita in 1942. The amount of soya products that will be consumed during fiscal 1944-45 is estimated to be 300 million pounds. This rate of demand cannot be attained without a substantial, educational and promotional campaign. But such a campaign is now under way on a scale that promises success. The supply of soybeans is adequate to meet this demand in full.

### Requirements

Requirements have been set at the estimated demand of 2.3 pounds per capita or 300 million pounds, retail weight. The uses of soya products are expected to be somewhat as follows:

<u>Product</u>	<u>Million Pounds</u>
Bread, crackers, doughnuts, and other bakery products.....	150
Household.....	30
Ground meat products.....	80
Macaroni and other paste products.....	5
Grits, flakes, cereal mixtures, confections, and soups.....	<u>35</u>
Total.....	300

There is no evidence to indicate a seasonal variation in the consumption of soya products. Since increased use of the product is dependent principally upon an educational campaign, however, it is probable that consumption will be successively larger each quarter. Since the rate of increase in consumption is indeterminable, and since the product can be stored satisfactorily, it will be desirable to make equal allocations for each quarter. (Table 24)

### Buckwheat

#### Consumption and Demand

Although buckwheat products have long been considered excellent foods both for human beings and for animals, it is a minor crop compared with corn, oats, or wheat. Production of buckwheat has never exceeded 15 $\frac{1}{4}$  million bushels, and during the past 15 years has ranged between 6 and 9 million bushels. Less than one-third of the crop is used for food purposes. Buckwheat flour is used mainly for making griddle cakes. It is also compounded with flours of other grains to make a prepared pancake flour mixture. A comparatively small quantity of buckwheat is milled into groats from which two types of foods are made--roasted broken kernels and farina. These are used in soups, as porridge, and occasionally as breakfast food.

Approximately two-thirds of the total United States buckwheat crop is grown in New York and Pennsylvania. These states also comprise the area of heaviest buckwheat consumption. Part of the buckwheat used for food is custom milled and used on the farms where it is grown. The quantity thus used has decreased steadily from 728 thousand bushels in 1919 to 114 thousand bushels in 1942. This appears to be about the minimum to which the farm use will decline. Commercially milled buckwheat flour has also been declining. In the 10-year period 1929 to 1939, the buckwheat flour production dropped from 38.5 million pounds to 22.6 million pounds. Although only about 800,000 bushels of buckwheat were commercially milled into flour in 1943, it is estimated that due to the increased demand for prepared pancake flour, the demand for buckwheat flour will be 39 million pounds, or the equivalent of about 1.4 million bushels of grain in fiscal 1944-45. (Table 23)

### Requirements

The 1943 crop of buckwheat produced 8.8 million bushels of grain. This is the largest crop since 1934 and is over 2 million bushels larger than any crop since 1935. In that year with a supply of about 8.3 million bushels of buckwheat, .9 million bushels were used for civilian food purposes. Therefore, unless unusually large amounts of buckwheat are diverted to feed purposes, the supply should be more than adequate to meet the demand for the grain for food purposes. The requirement for buckwheat has been designed to equate demand and supply in 1944-45 and is set at 1.4 million bushels, or an average of .51 pounds per capita. (Table 24)

### Peanut Flour

Peanut flour is a comparatively new product used principally by the baking industry. The flour is produced by a few mills in the South, with an estimated capacity of 6,000 tons per year. It is not expected that equipment will be made available until after the war to increase the milling capacity. At the present time the entire output of the mills is used for civilian food. There is limited distribution for home consumption in Alabama, and the remainder of the production goes into bakery goods.

Civilian requirements for peanut flour have been set at the present milling capacity of 12 million pounds of shelled peanuts.

### Cottonseed Flour

Cottonseed flour is a new product produced by only one mill which is located in Texas. The products of the mill are used only by the baking industry. One product "cina-coa", a roasted cottonseed flour, is used with oil of cashew to make a substitute for cinnamon and used with vanilla extract to make a substitute for cocoa. The unroasted flour is used in the baking industry in place of egg yolk in cakes and cookies. The grinding capacity of the mill is about 9,000 tons of cottonseed per year, and civilian requirements for fiscal 1944-45 have been set at this quantity.

### Grain Sorghum

The early white settlers in the semiarid regions of the United States depended heavily on grain sorghums as an important source of food, especially in years of severe drouth when corn and wheat failed. Since then, however, grain sorghums have been used little in the American diet.

Although grain sorghum may be used for food in the form of flour, in baking, or as a breakfast cereal in the form of grits, at the present time it is used principally in the form of waxy starch as a substitute for tapioca in pudding mixes. The commercial use of sorghum grain in the manufacture of waxy starch was begun in 1942, but no data are available on the quantity produced or used. However, from reports from General Foods Corporation, it is estimated that about three and a half million bushels of grain sorghum will be used in the coming year in the manufacture of tapioca substitute, for use principally in pudding mixes.

The production of grain sorghums for 1944-45 is estimated to be 114 million bushels, of which 3.5 million bushels will be used for food, 4 million bushels will be used for industrial purposes, and the remainder will be used for feed. (Table 24)

Normally, from 11 to 38 million bushels of grain sorghum are sold off the farms. It is, therefore, not anticipated that processors will encounter any difficulty in obtaining the 7.5 million bushels required for food and industrial uses.

### Grain for Fermented Malt Beverages

Although fermented malt beverages are not strictly a food, the requirements for grain for this purpose are included since the grain will be taken from the civilian supply.

Production of fermented malt beverages has increased from 37.7 million barrels in 1934 to 70.7 million barrels in 1943. Demand during the period July 1, 1944 to June 30, 1945 is expected to greatly exceed 71 million barrels. Production, however, is limited due to War Food Order 66 which places restrictions on the use and delivery of malted grain and malt syrup. Under this order any large brewer is limited to the use of 93 percent of the quantity of malted grain or malt syrup which he used for brewing purposes during a corresponding period of the base year, March 1, 1942 to February 28, 1943. A small brewer is limited to 100 percent of the quantity of malted grain or malt syrup which he used in the base period.

Requirements for grain for fermented malt beverages have been set at the quantities used in the calendar year 1943, and are as follows:



Barley, 64 million bushels; corn, 17 million bushels (including the grain equivalent of cornstarch, corn sugars and syrups, purchased for brewing); and wheat, 0.4 million bushels. Milled rice used for brewing has not been separated from the requirements for table rice, since it is difficult to tell how much screening and second head rice will be used. The requirement of rice for brewing will be about 1.7 million bags of rice, of which a substantial portion will be brewer's rice, which is not included in the allocation. The estimated requirements for milled rice take into consideration the portion of milled rice which ordinarily is used for brewing.

Table 25--GRAINS FOR BEVERAGE PURPOSES 1/: Civilian AGGREGATE ANNUAL REQUIREMENTS for 1944-45, By Quarters

Item	: 1944-45 Civilian Requirement				
	: : Aggregate				
	: Total	: July-	: Oct.-	: Jan.-	: April-
	: : Sept.:	: Dec.	: Mar.	: June	
	: 1	2	3	4	5
	- - - - - Million Bushels <u>2</u> / - - - - -				
Barley	64.0	17.3	16.0	14.1	16.6
Corn	17.0	4.6	4.2	3.8	4.4
Wheat	.4	.1	.1	.1	.1
	- - - - - Million Pounds <u>2</u> / - - - - -				
Rice (Brewers)	85.0	23.0	21.2	18.7	22.1

1/ Not included in food uses in Table 24.

2/ Primary distribution weight.



## SUGARS and SIRUPS

(Prepared by Isabelle M. Kelley)

### Summary

Sugars and sirups are of particular importance in our wartime diet as they add palatability to other highly nutritious foods, especially cereal products. Demand for cane and beet sugar is substantially above the maximum quantity available for civilian use but rationing controls have made possible a regulated distribution of the short supply. The civilian requirement for the year beginning July 1, 1944 is above the quantity allocated to civilians for the calendar year 1944 and is based upon the general policy of the War Food Administration relative to the distribution of a short supply of sugar among various civilian uses. Assuming the continuation of an inadequate supply of cane and beet sugar, the demand for sugars and sirups, other than cane and beet sugar, is at record levels. The civilian requirement for these other sugars and sirups has been placed at a level but slightly higher than estimated consumption in 1943, in order to insure reasonably equitable distribution.

### Significance to the Food Supply

Sugars and sirups are an essential part of our dietary pattern. They are useful as a source of energy and they contribute to the palatability of other nutritious foods. The national food program is based upon making continuously available plentiful supplies of cereal products which are items most commonly consumed by all segments of the population. Sugars and sirups are necessary to insure the production of cereal products palatable enough to guarantee consumption. Cane and beet sugar, corn sugar, corn sirup, and honey have important industrial uses, such as in the canning of fruits, in the manufacture of preserves, and in commercial bakery products.

### Cane and Beet Sugar

#### Consumption and Demand

There has been a remarkable increase in the per capita consumption of refined sugar in the past century. This upward trend was interrupted by slight declines in consumption during World War I and an economic recession in the early twenties. Sugar consumption during the thirties followed the trend of national income, declining from 108 pounds per capita in 1929 to a low of approximately 91 pounds in the middle thirties, then increasing until the economic recession in 1937-38. The outbreak of World War II stimulated a wave of sugar hoarding which increased apparent consumption in 1939. In 1941 consumption jumped to 103.6 pounds per capita, but was reduced to 86.2 pounds in 1942 and to 79.1 pounds in 1943, as shown in Table 26.

Table 26. CANE and BEET SUGAR: Civilian PER CAPITA and AGGREGATE ANNUAL CONSUMPTION for Specified Periods and Estimated DEMAND for 1944-45

Item	:	:	:	:	:	:	: Estimated
	:	:	:	:	:	:	: Civilian
	:	Apparent Civilian Consumption					: Demand
	:	1932	1935-39	1941	1942	1943	1944-45
	:	1	2	3	4	5	6
	- - - - - Per Capita (Pounds) - - - - -						
Cane and beet sugar <u>1/</u>		94.7	96.5	106.3	86.2	79.1	110.6
		- - - - - Aggregate (Thousand Short Tons, Raw Value) - - -					
Cane and beet sugar		5,870	6,700	7,350	6,102	5,481	7,700
<u>1/ Refined basis.</u>							

It is estimated that civilians would purchase a record quantity of 7,700,000 tons of cane and beet sugar in the year beginning July 1, 1944 in an unrestricted market, if this large an amount could be made available (see Table 26). The record level of consumer income has greatly increased the demand for sugar for all uses. Not only is there a demand for larger quantities for direct use in the home, but the demand for sugar for home canning of fruit undoubtedly will be greater in 1944-45 than in 1943-44, as the 1944 fruit crop should be larger than in 1943. Equally important is the increased demand for sugar in manufactured products. The consumption of products such as candy, commercially baked goods, ice cream, and soft drinks, increases rapidly as incomes rise and these industrial uses would absorb record quantities of sugar in 1944-45 if large enough supplies could be made available to permit unrestricted distribution.

#### Problems of Distributing a Short Supply

The War Food Administration has developed the basic policy that scarce commodities will make their greatest contribution to the adequacy of the civilian diet if they are used first to encourage the consumption of nutritious foods in relative abundance. The use of sugar in the wartime food program is an outstanding example of this policy.

Since supplies of sugar available for civilians will fall far short of the 7,700,000 tons that it is estimated would be required to meet all demands, and following over two years of experience with various methods of distributing inadequate supplies of sugar, the War Food Administration has developed the following general policy for distributing short supplies of sugar in a manner consistent with the nation-

**al food program:**

1. To maintain the existing level of the home ration which now is substantially restrictive for certain classes of families.
2. To provide adequate supplies of sugar for home canning purposes.
3. To prevent shortages of sugar from limiting the production of meats, canned fruit and vegetables, and other commodities of importance in the diet.
4. To prevent shortages of sugar from limiting the consumption of cereal products, which are efficient foods available in relative abundance and are the most commonly used by every segment of the population.
5. To provide for other users the maximum amount consistent with the objectives as outlined above.

The actual control over the distribution of a short supply of sugar is possible under the technique of rationing.

Determination of Requirements

The civilian requirement for sugar for the year beginning July 1, 1944 has been determined on the basis of the War Food Administration policy outlined above and requests a total amount that appears to be consistent with anticipated supplies and essential non-civilian requirements.

Table 27. CANE and BEET SUGAR: Civilian PER CAPITA and AGGREGATE ANNUAL REQUIREMENTS for 1944-45, By Quarters

Items	1944-45 Civilian Requirement					
	Per			Aggregate		
	Capita 1/	Total	July- Sept.	Oct.- Dec.	Jan.- March	April- June
	1	2	3	4	5	6
	Pounds		Short Tons, Raw			
Domestic ration		1,615,280	403,820	403,820	403,820	403,820
Home canning		708,000	376,000	80,000	21,000	231,000
Institutional		480,000	120,000	120,000	120,000	120,000
Industrial						
Cereal products		643,524	169,547	155,930	147,262	170,785
Provisional, net						
civilian 2/		384,909	148,918	74,973	68,174	92,844
Pharmacy		25,000	6,250	6,250	6,250	6,250
Other		1,340,098	336,296	346,548	269,177	338,017
Special allowances 3/		325,000	132,500	63,250	55,000	74,250
Grand Total	79.3	5,521,811	1,743,331	1,250,771	1,090,683	1,437,026

(\*See next page for footnotes)



(Table 27 Continued)

- 1/ Per capita requirement on refined basis.
- 2/ Processed fruits and vegetables (except pickled); preserves; meat packing; and bulk sweetened condensed milk. Does not include an estimated 188,000 tons to be used in non-civilian production of these items which is distributed by quarters as follows: July-Sept., 102,280 tons; Oct.-Dec., 36,480 tons; Jan.-March, 22,260 tons; April-June, 26,980 tons.
- 3/ Includes a quantity for replacement of reduced supplies of corn sweeteners in the July-September quarter, and for the year beginning July 1, 1944, provision for population shifts, petitions for relief from hardship, and unauthorized distribution in all civilian uses.

Domestic Ration: The requirement for sugar for distribution under the domestic ration totals 1,615,280 tons, raw value. This will provide for the continuance of the present home ration allowance and assumes 97 percent of the stamps outstanding are redeemed. This requirement is below the estimated distribution of sugar under the domestic ration in 1943. However, the number of War Ration Books No. 4 outstanding is smaller than the number of Ration Books No. 1 and this allows for a smaller total allocation while retaining the same allowance per person.

The direct ration now stands at 24 pounds per person per year. Reports and correspondence indicate that some people find that this ration substantially restrictive if baking is done in the home. While many consumers in urban areas tend to feel that the sugar ration is sufficient, it must be remembered that of all groups they probably rely most on commercial baked goods and eat the greatest number of meals in restaurants. Reducing the domestic ration would probably result in a further curtailment in home baking among rural families who do not have access to regular supplies of commercial bakery products and among those families who cannot afford to purchase the same quantity of bakery items that they now bake at home. As it does not appear feasible to ration sugar differentially to people who bake at home, it is recommended that there be no decrease in the current level of the domestic ration of 24 pounds per person per year.

Home Canning: The civilian requirement for home canning purposes for the year beginning July 1, 1944 totals 708,000 tons, raw value, or the same quantity requested for the calendar year 1944. This quantity will allow for an estimated 15 percent increase over 1943 in the overall sugar actually needed for home canning. However, it assumes the existence of more effective controls over the distribution of home-canning sugar than in 1943 when an estimated 919,000 tons was distributed.

Available estimates indicate that in 1943 a total of 1.6 billion jars of fruit, 1.9 billion jars of vegetables, and 500 million jars of preserves were put up in home canning projects in 1943. It is estimated that canning in that volume ~~would~~ have required approximately



560,000 tons of sugar, raw value. The need for sugar for home canning for the year beginning July 1, 1944 is expected to be 15 percent higher than in 1943 based on anticipated increases in fruit supplies available for home canning and on an increase in the percentage of families doing home canning. This would place actual needs at 644,000 tons, raw value. It is recognized that under any plan for distributing sugar for home canning there will be a leakage of sugar to non-canners. It is felt, however, that it should be possible to keep this leakage from exceeding 10 percent of the estimated needs. An additional 64,000 tons to cover the leakage of home canning sugar to non-canners, therefore, has been included.

Institutions: The requirement for institutions totals 480,000 tons, raw value, approximately equal to estimated distribution under this program in 1943. This is estimated to be sufficient to maintain the present per-meal allowances under General Ration Order No. 5.

Industrial Users: The civilian requirement for industrial users is based upon the desire to (1) maintain maximum production of canned fruits and vegetables, meats, preserves, and other items of importance in the diet; (2) insure continued consumption of cereal products which are efficient foods in relative abundance; and (3) to provide other users with the maximum amount consistent with these objectives.

Cereal Products: The civilian requirement for sugar for cereal products totals 643,524 tons, raw value. This requirement includes sugar for commercially baked goods and grain mill products such as breakfast foods.

The requirement will provide sufficient supplies of sugar to allow the use of approximately 60 million barrels of flour in the production of commercially baked products for civilians at an average ratio of 10 parts cane and beet sugar to 100 parts flour. Consumption of 60 million barrels of flour in commercial production of bakery products for civilians will provide for an increase of at least 5 percent over flour use by bakers in 1943. The increased use of flour in commercially baked products since 1941 in part has reflected the decrease in the amount of baking done in the home. It is expected that this trend away from home baking will continue in 1944-45 and sugar available for use in commercially baked goods must be increased to permit the use of increased quantities of flour, if the current overall level of cereal consumption by civilians is to be maintained in 1944-45.

An average ratio of 10 parts cane and beet sugar to every 100 parts flour is lower than the average sugar-to-flour use by commercial bakers in the ten years preceding the war. Data from the Census of Manufacturers indicate that the cane and beet sugar use increased from 10.18 percent of the flour used in 1931 to 12.0 percent in 1939. If the trend present in the 1930's continued, it is estimated that in 1941 cane and beet sugar use was at least 12.5 percent of the flour use. Therefore, the civilian requirement anticipates approximately

a 20 percent reduction in sugar use relative to flour, as compared with 1941; and necessitates an increase in the proportion of relatively low sugar-content items.

It is believed that sufficient palatability and variety may be achieved in commercial baked products with an average allowance of 10 parts cane and beet sugar to 100 parts flour because: (1) It is expected that the sugar conservation practices adopted by bakers since the advent of rationing will be continued. These measures have included the elimination of the highest sugar-content items, changes in formulae to achieve a greater volume of finished products with the same quantity of sugar, and a reduction in or elimination of icings. (2) Larger quantities of corn sugar and sirup have been available for use in commercially baked products since the beginning of cane and beet sugar rationing.

Similar considerations underlie the requirement for grain mill products.

Provisional Users: The civilian requirement totals 384,909 tons, raw value, which covers sugar requirements for the civilian share of the production of: (1) canned and frozen vegetables and fruits; (2) meats; (3) preserves; (4) bulk sweetened condensed milk.

The production of these items, because of their importance in the diet or the nature of their production, should not be limited by shortages of sugar. The requirement is based upon the maintenance of provisional allotments which limit the per-unit use but provide total quantities of sugar on the basis of expected production. The estimated amounts needed to meet the requirements of provisional users are based upon official estimates of production in all instances where available; and in other cases the estimated production used has been checked with commodity specialists in various agencies. The net civilian requirements are based upon allocations or upon War Food Orders reserving portions of the production for non-civilian use.

Pharmacy Products: The civilian requirement is placed at 25,000 tons, raw value, which is 5,000 tons above the estimated use in 1943. This will permit a basic allotment of 100 percent of 1941 use.

Other: The civilian requirement for other industrial users and for special allowances and unauthorized distribution under the rationing program totals 1,665,093 tons, raw value.

It is estimated that approximately 325,000 tons will be distributed under the provisions allowing adjustments in sugar use through petitions for relief from hardship and population shifts. In addition, it will provide for emergency allotments of cane and beet sugar to supplement reduced supplies of corn sweeteners in individual hardship cases; and further, for unauthorized distribution and other contingencies under rationing.

The remaining part of this requirement is for industrial uses not provided for in the requirements outlined above. These uses include a variety of products from salad dressing to sherbets. These items are deemed less essential to the adequacy of the civilian diet than are cereal products and those items on a provisional basis. The level of permitted use for these products must depend upon the quantity of sugar available for civilian use after the more essential requirements of the national food program are met.

The aggregate requirement, by quarters, is shown in Table 27.

### Other Sugars and Sirups

#### Consumption and Demand

Annual consumption of sugars and sirups, other than cane and beet sugar, was relatively stable in pre-war years at about 15 pounds per capita. Consumption increased slightly in 1941, then jumped to 23.3 pounds per capita in 1942, reflecting the increased demand for all sugars and the concurrent sharp decrease in available supplies of cane and beet sugar (Table 28). In 1943 consumption dropped, largely because of curtailed production of corn sugar and corn sirup in the summer months.

Table 28. SUGARS and SIRUPS: Civilian PER CAPITA ANNUAL CONSUMPTION for Specified Periods, and Estimated DEMAND for 1944-45

Item	Apparent Civilian Consumption						Estimated
							Civilian
							Demand
	1932	1935-39	1941	1942	1943	1944-45	
	1	2	3	4	5	6	
----- Pounds Per Capita -----							
Corn sugar 1/	5.38	3.15	3.77	4.69	4.45	5.00	
Corn sirup 1/	5.22	6.93	8.28	13.97	11.97	14.22	
Honey	1.23	1.36	1.78	1.38	1.62	2.50	
Other 2/	3.82	3.86	2.98	3.27	2.91	3.60	
Total	15.65	14.30	16.81	23.31	20.95	25.32	

1/ Estimated food use. Estimates are tentative and subject to revision.

2/ Includes maple sugar, maple sirup, sugar cane sirup, sorgo sirup, cane refiners sirup, and edible molasses.



Table 29. SUGARS and SIRUPS: Civilian AGGREGATE ANNUAL CONSUMPTION for Specified Periods, and Estimated DEMAND for 1944-45

Item	:						:	Estimated				
	:						:	Civilian				
	:	Apparent Civilian Consumption					:	Demand				
	:	1932	:	1935-39	:	1941	:	1942	:	1943	:	1944-45
	:	1	:	2	:	3	:	4	:	5	:	6
----- Million Pounds -----												
Corn sugar <u>1/</u>		675.0		408.5		500.0		620.0		577.0		650.0
Corn sirup <u>1/</u>		655.0		900.0		1,099.0		1,848.0		1,552.0		1,850.0
Honey		154.0		176.0		236.0		182.0		210.0		325.0
Other <u>2/</u>		480.0		501.0		395.0		433.0		377.0		465.0
Total		1,964.0		1,955.5		2,230.0		3,083.0		2,716.0		3,290.0

1/ Estimated food use. Estimates are tentative and subject to revision.

2/ Includes maple sugar, maple sirup, sugar cane sirup, sorgo sirup, cane refiners sirup, and edible molasses.

It is estimated that the demand for sugars and sirups (other than cane and beet sugar) would total almost 3.3 billion pounds for the year beginning July 1, 1944, as shown in Table 29. This estimate is based upon the assumption that cane and beet sugar supplies will not be increased substantially over present levels for most of the period under consideration.

#### Problems of Distributing a Short Supply

In 1943 disturbances resulting from too short a supply of other sugars and sirups were much in evidence. Reduced supplies of corn sugar and corn sirup in the summer and fall of 1943 disrupted the processing of foods using corn sweeteners and it was necessary to make emergency allocations of cane and beet sugar to industrial users dependent upon these corn sweeteners. Equally important were the difficulties sirup blenders in the Southeast had in securing adequate supplies of sugar sirups for the packing of table sirups, and the resulting reports of local shortages of sirups for table use.

Rationing of most of these products, however, would be rather difficult. Many of these items are produced by a large number of small processors. There is extensive home production of sorghum and sirups in the South, and of maple sugar and sirup in the Northeast. However, the distribution of molasses and honey are controlled by War Food Orders and results have been successful. The other two important items, corn sugar and corn sirup, could be controlled by a War Food Order in order to equitably distribute a short supply.

### Determination of Requirements

The requirement for all sugars and sirups, and corn sugar and sirup in particular, have been placed at 2,743.3 million pounds which, in our opinion, is necessary to insure a reasonably equitable distribution (Table 30). This level is somewhat above that available in 1943 in order to avoid the disturbances created by the inequitable distribution of a short supply in that year.

Per capita and total requirements for individual items are shown in Table 30.

Table 30. SUGARS and SIRUPS: Civilian PER CAPITA and AGGREGATE ANNUAL REQUIREMENTS for 1944-45

Item	: 1944-45 Civilian Requirement	
	: Per Capita	: Aggregate
	Pounds	Million Pounds
Corn sugar	4.5	580.0
Corn sirup	11.5	1,500.0
Honey	1.6	208.2
Other <u>1/</u>	<u>3.5</u>	<u>455.4</u>
Total	21.1	3,712.0

1/ Includes any combination of maple sugar, maple sirup, sugar cane sirup, sorgo sirup, cane refiners sirup, and edible molasses.

## FRUITS

(Prepared by Oscar R. LeBeau and Wm. R. Whitacre)

### Summary.

Fruits are important for the vitamins, variety, and palatability they contribute to the diet. Citrus fruits are especially significant as a source of ascorbic acid. Normally, about three-fourths of the total fruit available to civilians is consumed fresh; the remainder is processed into canned, dried, or frozen food products.

Annual civilian consumption of fresh and dried fruits has remained fairly uniform during recent years; while that for canned and frozen fruits has expanded considerably. Due to high incomes and the stringent supplies of certain foods, civilian demand for fruits in 1944-45 will be the highest ever recorded.

The chief problems of distributing a short supply of fruits are to maintain adequate price control, to prevent waste by spoilage, to provide means of equalizing transportation costs to more distant markets, and to prevent more than the customary proportion of the crop from being utilized for fresh market purposes. In general, insufficient supplies mean that grading standards will be lowered or ignored, and black markets encouraged. With the possible exception of citrus, the rationing of fresh fruit does not appear feasible because of the large number of small producers in widely scattered places whose sales it would be difficult to regulate. On the other hand, rationing has proved a fairly effective means of distributing a short supply of canned, dried, and frozen fruits. However, to insure favorable nationwide distribution reasonably adequate quantities of leading foods must be obtainable in every community.

The requirement for fresh fruits for the year starting July 1944 approximates the average consumption of fresh fruits during the five years 1935-39, except that the 1944-45 total includes a greater proportion of citrus. This emphasis on citrus reflects the greater nutritive significance of citrus and the increased production of this type of fruit.

The 1944-45 civilian requirement for canned fruits and fruit juices approximates three-fourths of the civilian consumption in 1942. The reduction is due principally to greater demands from the armed services. This quantity is regarded as essential to furnish civilians with adequate fruit during off-seasons and to maintain a satisfactory rationing program.

The 1944-45 civilian dried fruit requirement totals 320.0 thousand tons, which is below aggregate consumption in previous years except for 1941 and 1942. It is equal to about 74 percent of the quantity it is estimated



civilians would be willing to purchase if supplies were available. Prunes comprise 120.0 thousand tons of the total requirement while raisins and currants account for 160.0 thousand. The requirement should provide sufficient dried prunes, raisins, currants and other fruits to meet essential needs.

The 1944-45 frozen fruit requirement for civilians is designed to meet essential needs of the preserve industry for frozen fruits, but it will only partially supply the demand of other industrial users, such as bakeries and ice cream manufacturers. It is expected that a limiting factor in the supply of frozen fruits that can be packed for civilians in 1944-45 will be the availability of freezer space for storing such items.

#### Significance to Civilian Food Supply.

Fruits contribute variety and palatability to the diet. They are of greatest benefit when consumed fresh, since normally a considerable proportion of the valuable nutrients is lost or destroyed in processing. Fruits contain substantial quantities of vitamins and minerals and since some, such as citrus, make outstanding contributions, the fruit consumed may bring a diet that is otherwise deficient up to levels that are adequate.

Citrus Fruits: Fresh citrus fruit is available to some extent the year round and more than three-fourths of the crop is normally consumed in fresh form. The bulk of that which is processed is consumed as canned segments and juices. Smaller quantities are utilized for concentrate, marmalade, and citric acid. Nutritionally, citrus fruits are important principally as a source of ascorbic acid. This contribution is of outstanding importance because the ascorbic acid in citrus is less susceptible to destruction in processing than the other major sources of this vitamin. About 20 percent of the ascorbic acid in the 1943 food supply came from citrus sources.

Except in areas of production, consumption of fresh citrus fruits is largest among urban people and among the higher income classes. This is particularly true of grapefruit and to a lesser extent of oranges. Low-income groups depend for the most part on cheaper sources of ascorbic acid, such as potatoes and locally produced tomatoes.

Apples: Apples alone account for about one-fourth of the fresh fruit supply in normal years. They have long been a staple item in the American diet. Before the war, more than four-fifths of the nation's apple crop was regularly distributed to consumers in fresh form, and the remainder was processed. The most important of these processed

products, in terms of volume, have been apple vinegar, apple butter, apple cider, canned apples, and canned apple sauce. Within recent years canned apple juice, frozen apples, and apple concentrate also have increased in importance.

Fresh apples are particularly popular as a year-round fruit because of their flavor and the wide variety of ways in which they may be utilized. They are produced in abundance in practically all parts of the United States except the Northern Great Plains and the deep South. The distribution of the crop is normally fairly general. Low-income groups must usually depend on locally produced fruit.

Other Fruits: In addition to citrus and apples, Americans have come to rely on a long list of other fruits for variety and succulence in their daily diet. Most important of these, from the angle of volume, are peaches, bananas, grapes, pears, pineapples, and strawberries. When considered as a group, the non-citrus fruits contain only fair amounts of vitamins and minerals. However, certain members are particularly valuable. For example, fresh peaches and apricots are fairly good sources of vitamin A; and fresh pineapples and strawberries are rich sources of ascorbic acid. All supply variety and palatability to the diet.

Consumption of these fruits is greatest in the major producing areas of California, the Northwest, the North Central, the North Atlantic, and the Middle Atlantic states. As in the case of citrus and apples, consumption is greatest among the higher-income groups, except when there is an abundance of locally grown fruit. Except for berries, rapid expansion of production is not feasible because of the years required for fruit trees to reach maturity.

Melons: Cantaloups and watermelons are a favorite food for many. Yellow-fleshed cantaloups are a reasonably good source of vitamin A. They contribute variety and palatability to the diet.

Canned Fruits: Canned fruits comprise an important segment of the civilian diet. Not only are they needed by many families to supplement the scant supply of fresh fruits available during off-seasons, but they also are almost the only form of fruit available throughout the year to low-income families in many communities. Canned fruits are also an important source of fruit for such institutional users as bakeries, hotels, and restaurants, where their use saves much labor and contributes to more economic utilization of the fruit. Certain fruits such as grapefruit and pineapples are often more economical to buy in canned form than as fresh fruit.

Frozen or Cold-Packed Fruits: Frozen or cold-packed fruits are used in a two-fold manner; namely (a) for indirect or industrial use, and (b) for direct consumption. One of the most essential and largest uses for frozen fruits is in the manufacture of preserves, jellies, and marmalades.

Frozen fruits play an important part in providing a maximum quantity of spreads, thus encouraging increased consumption of bread. Another large industrial use for frozen fruit is as an ingredient of ice cream. Frozen cherries and apples are used extensively for the production of pies by the baking industry, and are a great labor-saving factor. Direct home use of frozen fruits accounts for a relatively small portion of the total civilian consumption, since only families with relatively high incomes can afford them.

Dried Fruits: Dried fruits are frequently more economical than canned fruits and are very helpful in supplementing the scant supply of fresh fruit during off-seasons. Dried prunes, raisins, figs, and dates are regarded as good sources of iron. Raisins and dried prunes together normally account for roughly three-fourths of the dried fruit consumption. Raisins are an important ingredient of many processed foods, of which bakery products are the most notable. By adding variety to the types of bakery products produced, raisins tend to encourage consumption of cereals and cereal products. Roughly one-half of the raisins normally consumed by civilians are utilized in the manufacture of processed foods. Dried apricots are an excellent source of vitamin A. The high nutritive value of dried apricots and their attractive flavor make them particularly desirable for use in hospitals, for infants, or for persons on certain types of restricted diets.

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To facilitate the discussions of the large number of commodities involved, the remainder of the rationale for the 1944-45 civilian fruit requirements is presented in four sections as follows: (A) Fresh Fruits and Melons, (B) Canned Fruits and Fruit Juices, (C) Frozen Fruits, and (D) Dried Fruits. Each section in turn deals with (1) the consumption and demand for the respective fruits, (2) the problem of distributing a short supply, and (3) the determination of the requirements.

### Fresh Fruits and Melons

#### Consumption and Demand

In general, the annual consumption of fresh fruit, unlike that of processed fruit, has remained at a fairly uniform level during recent years. This is directly related to the fact that larger quantities of fruit have been utilized for processing. Moreover, large expansion of the fresh fruit supply has not been feasible because of the time required for fruit trees to reach bearing age. As a result, the impact of heavy military and export requirements on the civilian supplies has been felt more keenly in the case of fruits than vegetables. (Tables 31 and 32).

Fresh Citrus: The apparent per capita consumption of fresh citrus fruit increased from 36.5 pounds in 1932 to an average of 48.8 pounds during the period 1935-39 and to 59.8 pounds in 1941. Despite the record production of recent years, requirements of the non-civilian claimants have made it difficult to satisfy the growing civilian demand. More than three-fourths of the citrus crop is normally consumed in fresh form.



It is estimated that the 1944-45 civilian demand for fresh citrus fruit will approximate 70.6 pounds per capita. This quantity is based on an estimated demand of 51 pounds of oranges and tangerines, 14 pounds of fresh grapefruit, and 5.6 pounds of fresh lemons and limes. In terms of aggregates, this means a 1944-45 civilian demand of 6,633 million pounds of oranges and tangerines, 1,821 million pounds of grapefruit, and 728 million pounds of lemons and limes. These estimates take into account increased level of consumer income and the restricted supplies of processed fruits available for civilians.

Fresh Apples: The apparent per capita annual consumption of commercially produced fresh apples was 30.2 pounds for the period 1935-39, 30.9 pounds in 1941, and 26.8 pounds in 1942. The 1943-44 allocation for civilians resulted in about 23.0 pounds per capita. (Table 31)

It is estimated that the 1944-45 civilian demand for fresh apples will be 37 pounds per capita, or an aggregate of 4,812 million pounds (approximately 100 million bushels). (Table 32). With the civilian supply of canned apples, applesauce, dried apples, and most other apple products greatly reduced, the demand for fresh apples will be correspondingly higher. Moreover, the higher incomes in prospect are certain to result in an increased demand for fresh fruit.

Other Fresh Fruit: The apparent per capita annual consumption of fresh fruits other than citrus and apples averaged 56.9 pounds during the period 1935-39 and increased slightly in 1941. Since then the increased food requirements for military and export purposes have decreased the supplies available to civilians. The 1943-44 supply for civilians will probably result in an average per capita consumption of about 35.3 pounds.

The 1944-45 civilian demand for this group of fresh fruits will approximate 80.9 pounds per capita, or an aggregate of 10,521 million pounds. Bananas and peaches together account for about three-fifths of the total. Other important fruits in this group are grapes, pears, and strawberries. These demand figures reflect not only the quantity desired for fresh consumption but also a fair supply for home canning and preserving.

Melons: The apparent average consumption of cantaloups and watermelons from commercial production during the period 1935-39 was 6.2 and 12.4 pounds respectively. It has not changed materially during subsequent years, except that during the last year or two supplies have decreased because increased production has not been encouraged by the War Food Administration.

The 1944-45 civilian demand for cantaloups and watermelons will aggregate about 1,301 and 2,601 million pounds respectively. This is equivalent to 10 pounds of cantaloups and to 20 pounds of watermelons per capita. These are clearly foods which civilians desire and will buy in large quantities, if they have the money.

Problems of Distributing a Short Supply.

Typical of these problems are the difficulties growing out of the short crops of apples and Concord grapes in 1943. Unless there is adequate price and distribution control, more than the customary proportion of the crop will be utilized for fresh market purposes and sold at prices beyond the reach of low-income groups. In general, inadequate supplies mean that grading standards will be lowered or ignored, and black markets encouraged. Federal assistance in the form of transportation subsidies may be desirable again in some instances to get satisfactory regional distribution of a short supply.

Fresh Citrus: The limited areas in which citrus is produced and the long distance that the fresh fruit must be transported to reach the consumers have militated against uniform distribution of the citrus crop, particularly in out-of-the-way villages and towns. Set-aside orders for Governmental purchase and for processing are likely to require at least as large a share of the citrus crop as last year. Rationing of grapefruit and oranges would be administratively more feasible than rationing of certain other fruits because citrus is produced in a relatively small area and inter-state shipments could be regulated. However, any perishable commodity such as citrus must be permitted to move rapidly through marketing channels if wastage is to be avoided.

Fresh Apples: Apples are grown in almost every state of the Union. For this reason, it does not appear administratively feasible to ration them. They are the major fruit available on many farms, and low-income groups normally depend on locally produced apples for the limited amount of fruit they are able to purchase. In so far as apples enter inter-state shipment, and are sold in the large population centers, some degree of control can be exercised over the flow to market. Transportation subsidies were instituted during the 1943-44 season to encourage the shipment of apples from the West Coast to the Eastern states because of the unusually small crop in the East. Repetition of this plan may be useful in the future where adequate distribution is lacking.

Other Fresh Fruit: Most of these fruits are highly perishable and must be handled with care and dispatch. For this reason, rationing is not regarded as feasible. Fortunately a considerable amount of substitution is possible so long as one or more fruits in this group are available in abundance. In the case of bananas and pineapples, the supply is highly dependent on the ocean shipping situation. It is not likely that shipping will be available to bring in anything like the quantity of bananas that could be sold in this country in 1944-45.

Melons: Cantaloups and watermelons are not regarded as very efficient foods in terms of the land, labor, and transportation required. However, when production was curtailed in 1943, melons sold at record-breaking prices. It is hoped that the inauguration of ceiling prices on fresh melons will help to prevent a similar situation this coming year.

## Determination of Requirements

Since the fresh fruit supplies in 1944-45 will obviously be inadequate to satisfy the total demands of all claimants, the over-all civilian requirement for fresh fruit has been placed at 143.8 pounds per capita, or at about 76 percent of the estimated free market demand. This amounts to an aggregate civilian requirement of 18,702 million pounds of fresh fruit. (Table 33).

Fresh Citrus: The 1944-45 civilian requirement for citrus fruit is given at 62.1 pounds per capita as compared with an estimated demand of 70.6 pounds. In view of the prospective crop and the needs of other claimants, this appears to be as large an amount as can be made available to civilians. Of this requirement, 45.0 pounds should consist of oranges and tangerines; 12.5 pounds of grapefruit; 4.5 pounds of lemons; and 0.1 pounds of limes. This amounts to a total aggregate requirement of 8,076 million pounds of fresh citrus. These quantities are regarded as essential to provide the American public with the ascorbic acid, thiamine, and other nutrients that citrus fruits afford. This is one of the places where our diet needs most to be fortified.

Fresh Apples: In view of the importance of fresh apples in the dietary pattern of civilians, and the difficulties that would be involved in rationing this fruit, the 1944-45 civilian requirement is placed at 32.0 pounds per capita, as compared with an estimated demand of 37.0 pounds. This requirement appears to be as high as crop prospects and needs of other claimants will permit and amounts to a total aggregate requirement of 4,162 million pounds, or about 86 million bushels.

Other Fresh Fruit: The 1944-45 per capita requirement for fresh fruit other than citrus and apples is 49.7 pounds, or approximately five-eighths of the estimated free market demand of 80.9 pounds. This amounts to an aggregate requirement of 6,464 million pounds for this group. No specific civilian requirements are submitted for the individual commodities in this group. However, it is expected that the total minimum requirement of 49.7 pounds per capita for the group will be supplied from the respective commodities in approximately the same proportion as that indicated by the demand figures. This means that the principal items will be peaches, bananas, grapes, pears, and strawberries. Reasonable supplies of apricots, avocados, cherries, cranberries, figs, pineapples, and plums will be required to provide variety to the civilian diet.

Melons: Considering the high cost of melons in terms of land, labor, containers and transportation, and their relatively low importance from a nutritional standpoint, the civilian requirement for cantaloups and watermelons is being held to 6.0 and 10.0 pounds, respectively. This amounts to an aggregate of 780 million pounds for cantaloups and 1301 million for watermelons. If such a quantity is not feasible, this Branch is prepared to accept an allocation of whatever supplies are available.



Table 31 - FRESH FRUITS AND MELONS: Civilian PER CAPITA ANNUAL CONSUMPTION for Specified Periods, and Estimated Civilian DEMAND for 1944-45 1/

Item	Apparent Civilian Consumption					Estimated Civilian Demand
	1932	1935-39	1941	1942	1943 2/	1944-45 3/
	1	2	3	4	5	6
-----Pounds Per Capita 4/-----						
CITRUS						
Oranges & Tangerines	25.9	34.0	42.8	41.0	42.2	51.0
Grapefruit	7.4	10.8	12.1	11.7	12.3	14.0
Lemons	3.2	4.0	4.8	4.1	5.1	5.5
Limes	5/	5/	.1	.1	.2	.1
Total	36.5	48.8	59.8	57.9	59.8	70.6
APPLES (Commercial)	5/	30.2	30.9	26.8	23.0	37.0
OTHER FRUIT						
Apricots	.4	.5	.4	.5	.6	.7
Avocados	.1	.2	.4	.3	.3	.5
Bananas	19.7	22.8	19.2	9.9	9.5	28.0
Cherries	1.3	.8	.9	.9	1.0	1.6
Cranberries	.4	.3	.4	.3	.3	.5
Figs	.1	.1	.1	.1	.1	.1
Grapes	7.8	6.3	6.2	6.2	4.8	8.5
Peaches	9.3	13.6	18.2	14.3	8.1	21.0
Pears	5.3	6.5	6.5	6.7	6.4	9.0
Pineapples	.8	.8	.8	.4	.5	1.0
Plums, Prunes	1.8	1.6	1.7	1.8	1.4	3.0
Strawberries	3.4	2.6	2.7	2.7	1.7	6.0
Other Berries	1.9	.8	.7	.7	.6	1.0
Total	51.3	56.9	58.2	44.8	35.3	80.9
GRAND TOTAL 6/ 7/	87.8	135.9	148.9	129.5	118.1	188.5
MELONS						
Cantaloups, Honeydews, Honeyballs	6.9	6.2	5.8	4.5	4.2	10.0
Watermelons	11.5	12.4	11.9	10.1	8.8	20.0
Total	18.4	18.6	17.7	14.6	13.0	30.0

1/ Data for citrus are for crop year ending in the year shown; those for other fruits are for the crop year beginning in the year shown, or for the calendar year.

2/ Preliminary.

3/ Estimates furnished by commodity specialists of BAE.

4/ Farm weight basis.

5/ Not available.

6/ Excludes some minor fruits not enumerated above.

7/ Does not include apples.

Table 32- FRESH FRUITS AND MELONS: Civilian AGGREGATE ANNUAL CONSUMPTION for Specified Periods, and Estimated Civilian DEMAND for 1944-45 1/

Item	: Apparent Civilian Aggregate Consumption :					: Estimated
	: 1932 :	: 1935-39 :	: 1941 :	: 1942 :	: 1943 2/ :	: 1944-45 3/
	: 1	: 2	: 3	: 4	: 5	: 6
-----Million Pounds <u>4/</u> -----						
CITRUS						
Oranges & Tangerines	3254	4413	5673	5430	5472	6633
Grapefruit	927	1396	1598	1552	1594	1821
Lemons	397	524	639	544	658	715
Limes	5/	5/	10	15	20	13
Total	4578	6333	7920	7541	7744	9182
APPLES (Commercial)	5/	3915	4100	3546	2980	4812
OTHER FRUITS						
Apricots	56	64	55	67	77	91
Avocados	17	26	51	37	45	65
Bananas	2478	2966	2553	1315	1227	3642
Cherries	161	105	122	125	130	208
Cranberries	55	39	46	39	41	65
Figs	8	13	13	12	8	13
Grapes	975	812	822	815	620	1106
Peaches	1166	1767	2415	1894	1051	2731
Pears	660	838	862	885	824	1170
Pineapples	108	103	104	50	65	130
Plums, Prunes	221	209	225	244	180	390
Strawberries	421	332	357	358	217	780
Other Berries	120	110	98	92	80	130
Total	6446	7384	7723	5933	4565	10521
GRAND TOTAL 6/	7/11024	17632	19743	17020	15289	24515
MELONS						
Cantaloups, honey-						
dews, honeyballs	864	804	769	596	544	1301
Watermelons	1442	1604	1578	1338	1141	2601
Total	2306	2408	2347	1934	1685	3902

1/ Data for citrus are for crop year ending in the year shown; those for other fruits are for the crop year beginning in the year shown, or for the calendar year.

2/ Preliminary.

3/ Estimates furnished by commodity specialists of B.E.

4/ Farm weight basis.

5/ Not available.

6/ Excludes some minor fruits not enumerated above.

7/ Does not include apples.

Table 33- FRESH FRUITS AND MELONS: Civilian PER CAPITA and  
AGGREGATE ANNUAL REQUIREMENTS, 1944-45 <sup>1/</sup>

Item	1944-45 Civilian Requirements	
	Pounds	Aggregate
	Per Capita <sup>2/</sup>	Million Pounds <sup>2/</sup>
	1	2
CITRUS		
Oranges & Tangerines	45.0	5852
Grapefruit	12.5	1626
Lemons	4.5	585
Limes	0.1	13
Total	62.1	8076
APPLES	32.0	4162
OTHER FRUIT		
Apricots	<u>3/</u>	<u>3/</u>
Avocados	<u>3/</u>	<u>3/</u>
Bananas	<u>3/</u>	<u>3/</u>
Cherries	<u>3/</u>	<u>3/</u>
Cranberries	<u>3/</u>	<u>3/</u>
Figs	<u>3/</u>	<u>3/</u>
Grapes	<u>3/</u>	<u>3/</u>
Peaches	<u>3/</u>	<u>3/</u>
Pears	<u>3/</u>	<u>3/</u>
Pineapples	<u>3/</u>	<u>3/</u>
Plums, Prunes	<u>3/</u>	<u>3/</u>
Strawberries	<u>3/</u>	<u>3/</u>
Other Berries	<u>3/</u>	<u>3/</u>
Total	49.7	6464
GRAND TOTAL ALL FRUITS	143.8	18702
MELONS		
Cantaloups, Honey-		
dews, Honeyballs	<u>4/</u>	<u>4/</u>
Watermelons	<u>4/</u>	<u>4/</u>
Total	<u>4/</u>	<u>4/</u>

<sup>1/</sup> Year beginning July 1

<sup>2/</sup> Farm weight basis

<sup>3/</sup> Will accept residual supply, provided total requirement for group is satisfied

<sup>4/</sup> Will accept residual supply



## Canned Fruits and Fruit Juices

### Consumption and Demand.

The annual consumption of canned fruits and fruit juices combined increased from an average of 20.7 pounds per capita during 1935-39 to a peak of 26.3 pounds per capita in 1941. Since then, the heavy requirements for military and export purposes and the need for restricting the use of tin have diminished the quantities available to civilians to a point where in 1943-44 they were allocated only 16.7 pounds of canned fruit and fruit juices per capita. (Table 34). In terms of aggregates, civilians consumed a total of 80.3 million cases of canned fruit in the peak year 1941 compared with an allocation of 50.2 million cases in 1943-44, and an average annual consumption of 61.8 million cases during 1935-39. (Table 35).

Substantial gains were made in per capita consumption of canned citrus during pre-Pearl-Harbor years, the consumption in 1941 being almost double the annual average for the years 1935-39. This increment was due mainly to the increased consumption of the vitamin-rich citrus juices. Consumption of all other fruit juices decreased from 3.6 pounds per capita in 1935-39 to 2.5 pounds in 1942. This reduction was due mainly to a shortage of pineapple juice. Improvement in the shipping situation in 1943-44 is expected to result in a gain of 1 pound per capita in the quantity of pineapple juice available to civilians.

The demand for canned fruits is influenced to a greater degree by the level of consumer income than by any other one factor. Therefore, largely because of the increased purchasing power of many American families, it is estimated that the civilian demand for canned fruits and fruit juices out of the 1944-45 pack, if there were no rationing restrictions, would aggregate 98.7 million cases, or 33.0 pounds per capita. This estimate includes a calculated demand for 33.6 million cases (basis No. 2's) of citrus segments and juices, 59.9 million cases (basis No. 2½) of peaches, pineapples and other fruits, and 22.6 million cases (basis No. 2's) of fruit juices, other than citrus. Expressed in per capita terms, these quantities are equivalent to 7.6, 20.2, and 5.2 pounds respectively. These demand calculations are based on individual consideration of each commodity and have the concurrence of commodity specialists in the Bureau of Agricultural Economics.

Citrus Concentrates: The use of citrus concentrates as a base for various beverages has increased substantially during recent years. They are in demand principally by beverage makers, other industrial users and for home use. Few data are available regarding the quantities consumed prior to the fiscal year 1943-44. Civilians were allocated 1,114,000 gallons of citrus concentrates in 1943-44 consisting of 32,000 grapefruit, 882,000 orange and 200,000 lemon and lime.

### Problems of Distributing a Short Supply.

Since the supply of canned fruits that can be made available for civilians for the duration of the war will be far less than the demand, rationing of these commodities should be continued and improved.

In general, point rationing has proved an effective means of controlling the distribution of a short supply of canned fruits. Successful rationing must be predicated on the availability of a sufficient supply of all important items to make nationwide distribution feasible, so that consumers in all communities can have a reasonable opportunity of obtaining any commodity if they are willing to spend their ration stamps for it.

#### Determination of Requirements

In computing the civilian requirements for canned fruits and fruit juices for 1944-45 consideration was given to the probable pack, to the large set aside required by WFO 22.6, to increased demand under prevailing income conditions, to dietary significance of certain items, and to the quantity required to make rationing function successfully. Accordingly, the aggregate civilian requirement has been set at 48.1 million cases (basis 24 No. 2 $\frac{1}{2}$  cans), as compared with an estimated demand of 98.7 million cases and a peak consumption of 80.3 million cases in 1941.

This requirement is equivalent to only 16.1 pounds of canned fruit per capita, or to a little less than one-half of the estimated demand of 33.0 pounds per capita. However, it would give about the same amount per capita as will be consumed by civilians in 1943-44 out of the 1943 pack. To maintain the desired variety and balance about 4.3 pounds of this requirement should consist of citrus fruits and juices, 8.8 pounds of other fruits and berries, and 3.0 pounds of non-citrus fruit juices. Expressed in terms of aggregates, the civilian canned fruit requirement includes 19.0 million cases (basis 24 No. 2 cans) of citrus fruits and juices, 26.0 million cases (basis No. 2 $\frac{1}{2}$ ) of peaches, pineapples, and other fruits, and 13.0 million cases (basis No. 2) of non-citrus juices. (Table 36).

The only specific citrus requirement is that of 15.5 million cases (basis No. 2's) of grapefruit juice -- regarded as essential because of its ascorbic acid content. The remaining 3.5 million cases of the civilian citrus requirement may be supplied from any combination of grapefruit segments, citrus salad, and other citrus juices that the supply permits. One of the danger points in the civilian diet is ascorbic acid, of which citrus and tomatoes are the principal sources. Distribution of fresh citrus fruit, especially grapefruit, is very spotty. Canning a reasonable proportion of the civilians' share of citrus permits better distribution regionally and throughout the year.

Specific requirements are being submitted for 19.0 million cases (basis No. 2 $\frac{1}{2}$ ) of canned peaches, pineapples, fruit salad and cocktail, pears, and apricots. These are the canned fruits normally used in greatest quantity. Also, they are the ones most essential for an adequate civilian diet and for which the use of tin is most justified. Ample supplies of these commodities will be necessary to insure favorable nationwide distribution under rationing. The remaining 7.0 million cases required from this group of canned fruits can be supplied in any combination of apples, applesauce, berries, cranberries, cherries, figs, olives, plums, and

(Continued on Page 88)

Table 34- CANNED FRUITS: Civilian PER CAPITA ANNUAL CONSUMPTION for Specified Periods, and Estimated DEMAND for 1944-45 <sup>1/</sup>

Item	Apparent Civilian Consumption					Estimated
	1932	1935-39	1941	1942	1943 <sup>2/</sup>	Civilian Demand
	1	2	3	4	5	1944-45 <sup>3/</sup>
Pounds Per Capita (processed)						
CITRUS FRUITS & JUICES <sup>4/</sup>						
Grapefruit segments	.3	.6	1.0	.2		1.5
Citrus salad	<sup>5/</sup>	<sup>6/</sup>	<sup>5/</sup>	<sup>5/</sup>	--	.2
Grapefruit juice	<sup>7/</sup> .1	<sup>7/</sup> 1.9	2.8	1.9	3.0	3.7
Orange juice	<sup>7/</sup> .5	<sup>7/</sup> .4	.8	1.0	.4	1.2
Lemon juice	<sup>7/</sup> .4	<sup>7/</sup> .1	.1	.1	<sup>6/</sup>	.1
Mixed citrus juice	<sup>5/</sup>	<sup>5/</sup>	.5	.5	.3	.9
TOTAL	1.3	3.0	5.2	3.7	3.7	7.6
OTHER FRUIT						
Apples	.8	.6	1.0	.8	.2	.7
Applesauce	<sup>5/</sup>	.6	.9	.8	.8	.7
Apricots	.6	.9	1.3	.9	.1	1.4
Berries (All)	.3	.4	.5	.3	.2	.6
Cranberries	.1	.4	.9	1.0	.3	1.0
Cherries, RSP	)	.6	.5	.5	.1	.7
Cherries, sweet	) .7	.2	.3	.3	.2	.4
Figs	.1	.1	.2	.1	.1	.3
Fruit salad & cocktail	.2	1.0	1.9	1.8	1.2	2.4
Olives	.4	.2	.2	0	.1	.3
Peaches	2.8	3.2	3.9	3.7	2.9	4.6
Pears	.8	1.2	2.0	1.2	.9	2.0
Pineapple	3.0	4.1	3.7	1.6	2.4	4.5
Plums & Prunes	.2	.6	.4	.3	.8	.6
TOTAL	10.0	14.1	17.7	13.3	10.3	20.2
OTHER JUICES						
Apple	<sup>5/</sup>	.1	.3	.3	.1	.5
Grape	.3	.6	.5	.6	.3	.8
Pineapple	<sup>5/</sup>	2.6	2.1	1.1	1.8	3.3
Prune, Nect., etc.	<sup>5/</sup>	.3	.5	.5	.5	.6
TOTAL	<sup>5/</sup>	3.6	3.4	2.5	2.7	5.2
TOTAL, ALL FRUITS & JUICES	11.6	20.7	26.3	19.5	16.7	33.0

<sup>1/</sup> Based on crop year beginning in year shown.

<sup>2/</sup> Preliminary estimate.

<sup>3/</sup> Estimates furnished by commodity specialists of B.M.

<sup>4/</sup> Single strength juice equivalent.

<sup>5/</sup> No data available.

<sup>6/</sup> Less than 0.05 lbs.

<sup>7/</sup> Includes pulp and concentrates.



Table 35- CANNED FRUITS: Civilian AGGREGATE ANNUAL CONSUMPTION for Specified Periods, and Estimated Civilian DEMAND for 1944-45 <sup>1/</sup>

Item	Apparent Civilian Consumption					Estimated
	1932	1935-39	1941	1942	1943	Civilian Demand
	2/	3/	4/	5/	6/	3/
	1	2	3	4	5	6
CITRUS FRUITS & JUICES	Million Cases 24 #2's					
Grapefruit segments	1.3	2.8	4.2	.7	0	6.5
Citrus salad	5/	5/	.5/	.5/	-	.9
Grapefruit juice <sup>4/</sup>	6/ .4	6/8.4	12.7	8.8	13.5	16.5
Orange juice <sup>4/</sup>	6/2.2	6/1.9	3.8	4.5	1.6	5.2
Lemon juice <sup>4/</sup>	6/1.7	6/ .4	.2	.3	.2	.4
Mixed citrus juice <sup>4/</sup>	5/	5/	2.2	2.4	1.5	4.1
TOTAL	5.6	13.6	23.1	16.7	16.8	33.6
OTHER FRUITS	Million Cases 24 #2's					
Apples	2.6	1.9	3.4	2.6	.6	2.3
Applesauce	5/	1.7	2.8	2.5	2.3	2.1
Apricots	1.6	2.6	3.8	2.5	.3	4.0
Berries (All)	.9	1.2	1.6	.8	.7	1.8
Cranberries	.3	1.0	2.6	2.6	.7	2.7
Cherries, RSP )	2.1	1.8	1.6	1.7	.2	2.1
Cherries, sweet)		.6	.8	.7	.8	1.2
Figs	.2	.4	.6	.4	.4	.9
Fruit salad and cocktail	.7	2.9	5.6	5.1	3.5	6.9
Olives	1.7	.8	1.1	.2	.4	1.4
Peaches	8.0	9.6	11.9	11.1	8.7	13.8
Pears	2.4	3.5	6.0	3.7	2.7	6.0
Pineapple	8.4	11.8	10.9	4.7	6.9	13.0
Plums & Prunes	.6	1.7	1.3	.8	2.4	1.7
TOTAL	29.5	41.5	54.0	39.4	30.6	59.9
OTHER JUICES	Million Cases 24 #2's					
Apple	5/	.4	1.2	1.2	.6	2.2
Grape	1.2	2.8	2.4	2.7	1.4	3.5
Pineapple	5/	11.2	9.2	5.0	7.8	14.3
Prune, Nect. etc.	5/	1.4	2.3	2.2	1.9	2.6
TOTAL JUICES	5/	15.8	15.1	11.1	11.7	22.6
TOTAL, ALL FRUITS & JUICES	Million Cases 24 #2's					
	5/	61.8	80.3	58.6	50.2	98.7

1/ Based on crop year beginning in year shown.

2/ Preliminary estimate.

3/ Estimates furnished by commodity specialists of A.E.

4/ Single strength juice equivalent.

5/ No data available.

6/ Includes pulp and concentrates.

Table 36 - CANNED FRUITS: Civilian PLR CAPITA and AGGREGATE ANNUAL REQUIREMENTS for 1944-45 <sup>1/</sup>, Including Percentage Distribution by Quarters

Item	1944-45 Civilian Requirement					
	Per :	Aggregate				
	Capita :	Total :	July-	Oct.-	Jan.-	April-
	:	:	Sept	Dec.	Mar.	June
	1	2	3	4	5	6
	Pounds	Mil. Cases	-----Percentage Distribution-----			
		(24 #2's)				
CITRUS FRUITS AND JUICES <sup>2/</sup>						
Grapefruit segments	3/	3/	26	25	23	26
Citrus salad	3/	3/	26	25	23	26
Grapefruit juice	3.5	15.5	27	25	20	28
Orange juice	3/	3/	27	25	20	28
Lemon juice	3/	3/	27	25	20	28
Mixed citrus juice	3/	3/	27	25	20	28
TOTAL	4.3	19.0	--	--	--	--
OTHER FRUITS		--24 #2's--				
Apples	3/	3/	21	26	27	26
Applesauce	3/	3/	21	26	27	26
Apricots	.5	1.5	23	24	27	26
Berries (All)	3/	3/	20	29	29	22
Cranberries	3/	3/	10	58	24	8
Cherries, RSP	3/	3/	19	24	32	25
Cherries, sweet.	3/	3/	22	25	27	26
Figs	3/	3/	21	23	27	29
Fruit salad and cocktail	1.0	3.0	24	25	25	26
Olives	3/	3/	26	24	24	26
Peaches	2.2	6.5	24	22	26	28
Pears	.5	1.5	21	23	27	29
Pineapple	2.3	6.5	22	26	26	26
Plums & Prunes	3/	3/	21	23	27	29
TOTAL	8.8	26.0	--	--	--	--
OTHER JUICES		--24 #2's--				
Apple	3/	3/	24	24	26	26
Grape	3/	3/	33	16	18	33
Pineapple	2.0	8.7	24	24	26	26
Prune, Nect., etc.	3/	3/	24	24	26	26
TOTAL	3.0	13.0	--	--	--	--
		--Mil. Cases--				
		(24 # 2 1/2's)				
TOTAL, ALL FRUITS & JUICES	16.1	48.1	--	--	--	--

<sup>1/</sup> Year beginning July 1. Requirements apply to 1944-45 pack of citrus fruits and juices, and to 1944 pack of all other fruits and juices.

<sup>2/</sup> Single strength juices.

<sup>3/</sup> Will accept residual supply, provided total requirement for group is satisfied.

prunes, so long as the total requirement for the group is satisfied and due consideration is given to the relative demand for the respective items.

The only non-citrus juice for which a specific requirement is included is that for 8.7 million cases (basis No. 2's) of pine-apple juice. It is by far the most important non-citrus juice, and an adequate quantity should be provided to insure successful nationwide distribution under rationing. The remaining 4.3 million cases requirement for non-citrus juice may be supplied from grape juice, apple juice, prune juice, fruit nectars and other juices, in any combination that is most in line with the supply and the requirements of other claimants.

Recommended Quarterly Distribution of Canned Fruits: The recommended quarterly distribution of these canned fruits is given in Table 36. It indicates the rate at which it is recommended supplies should be rationed and made available to ultimate consumers. Movement from processors' hands necessarily would be somewhat in advance of the quarterly distribution shown in the requirement table.

Citrus Concentrates: Expansion in production facilities make probable a somewhat larger volume of citrus concentrates for civilian use during 1944-45 than the 1,114,000 gallons allocated in 1943-44. Accordingly, the requirement for 1944-45 has been placed at 1,300,000 gallons consisting of 100,000 gallons of grapefruit concentrate, 1,000,000 orange and 200,000 lemon and lime.

### Frozen Fruits

#### Consumption and Demand

The civilian consumption of frozen fruit has increased during recent years, from an average of 127 million pounds (about 1.0 pound per capita) for the period 1935-39, to a peak of 219.5 million pounds (about 1.7 pounds per capita) in 1942-43. It is estimated that a slightly smaller quantity will be consumed in 1943-44, owing to the reduced pack resulting from short berry and fruit crops. (Tables 37 and 38).

Normally, berries account for more than half of the total quantity of frozen fruit packed. Strawberries are the most important single frozen fruit, while cherries, an important factor in the pie industry, rank a close second. Large quantities of grape pulp and juice are also frozen for use largely by the preserve industry. Other fruits cold-packed in significant quantities are raspberries, blackberries, blueberries, peaches, apples, and apricots.

Limitations of storage space available for frozen fruit in 1944-45 will make it impossible for civilians to obtain the quantities of



frozen fruit which they would like to purchase. It has been estimated that the civilian demand for frozen fruit during the 1944-45 season at ceiling prices and in an otherwise restricted market would total as much as 533.2 million pounds, or 4.1 pounds per capita, if this quantity could be made available. However, it is probable that lack of storage space is likely to affect the pack and supplies of frozen fruits available for civilian consumption may be even less in 1943-44.

#### Problems of Distributing a Short Supply

The most acute problem in distributing a short supply of frozen fruits is that of providing preservers with the fruit required to produce the desired quantity of jams, jellies, and other spreads needed to maintain the current consumption of bread and other cereal products. However, when the urgent need for freezer space for meats and other high priority products made it desirable that frozen fruits and vegetables be moved out of cold storage space at a more rapid rate, these frozen foods were removed from rationing early in April 1944. Thus, at present there is no restriction upon the use of frozen fruits by ice cream manufacturers, bakeries, and other industrial users. Since frozen fruits for direct consumption by hotels, restaurants, and in homes serve mainly to supplement the quantities of fresh and canned fruits available, no special difficulty is anticipated if supplies are scarce. Under these circumstances sometimes less expensive forms of fruit can be substituted.

#### Determination of Requirements

In computing the civilian requirement for frozen fruits during 1944-45, special consideration was given to the fact that they are an essential raw material for the preserve industry. Accordingly, the requirement has been set at a level calculated to supply in full the demands of the preserve industry, as based on the civilian requirement for preserves. The requirement submitted will meet only partly the demands of the ice cream, baking, confectionery, and other industries and will provide home and institutional users at about the same rate as during the past year.

The civilian requirement for frozen fruits for 1944-45 takes into consideration the probability that freezer storage space will continue to be limited and that it will not be feasible to expand refrigeration facilities for handling frozen foods in wholesale and retail establishments during this period.

The aggregate civilian requirement for all frozen fruits for 1944-45 has been set at 207.0 million pounds, as compared with an estimated peak usage in 1942-43 of 219.5 million pounds. The requirement consists of 45.0 million pounds of strawberries, 57 million pounds of raspberries, blackberries, and other berries, 40 million pounds of cherries, and 65 million pounds of apples, apricots, grapes, peaches, and other fruits. (Table 39).

(Continued on Page 93)

Table 37 - FROZEN FRUITS: Civilian PER CAPITA ANNUAL CONSUMPTION for Specified Periods, and Estimated DEMAND for 1944-45 <sup>1/</sup>

Item	Apparent Civilian Consumption					Estimated
						Civilian Demand
	1932	1935-39 2/	1941	1942	1943 3/	1944-45 4/
	1	2	3	4	5	6
-----Pounds Per Capita 5/-----						
Strawberries	6/ .39	.39	.52	.55	1.32	1.2
Raspberries	6/ .08	.08	.15	.15	.17	.4
Blackberries	6/ .05	.05	.07	.07	.07	.2
Other Berries	6/ .04	.04	.13	.11	.09	.4
Total	6/ .56	.56	.87	.88	.65	2.2
Cherries	6/ .26	.26	.23	.34	.24	.7
Apples	6/ .01	.01	7/	7/	7/	7/
Apricots	6/ 8/	8/	7/	7/	7/	7/
Grape Pulp & Juice	6/ .05	.05	.12	.17	.29	.3
Peaches	6/ .03	.03	7/	7/	7/	7/
Other	6/ .06	.06	.11	.27	.27	.9
Total Other Than Berries	6/ .41	.41	.46	.78	.80	1.9
Total All Frozen Fruit	.6	.97	1.33	1.66	1.45	4.1

- 1/ Based on fiscal year beginning July 1.
- 2/ 1937-39 average; based on data from Western Canner & Packer, 1942 Yearbook; earlier data not available.
- 3/ Preliminary estimate.
- 4/ Estimates by commodity specialists of BAE.
- 5/ Processed weight.
- 6/ Data not available.
- 7/ Included in "other."
- 8/ Less than .005 pounds.

Table 38 - FROZEN FRUITS: Civilian AGGREGATE ANNUAL CONSUMPTION for Specified Periods, and Estimated DEMAND for 1944-45 1/

Item	Apparent Civilian Consumption					Estimated
						Civilian Demand
	1932	1935-39 2/	1941	1942	1943 3/	1944-45 4/
	1	2	3	4	5	6
	-----Million Pounds 5/-----					
Strawberries	6/ 50.0	68.3	72.5	41.3	156.1	
Raspberries	6/ 10.8	19.6	19.4	22.4	52.0	
Blackberries	6/ 6.1	9.9	9.6	9.0	26.0	
Other Berries	6/ 5.4	17.6	15.1	12.1	52.0	
Total Berries	6/ 72.3	115.4	116.6	84.8	286.1	
Cherries	6/ 34.0	30.7	45.6	31.2	91.0	
Apples	6/ 1.8	7/	7/	7/	7/	
Apricots	6/ 0.2	7/	7/	7/	7/	
Grapepulp & Juice	6/ 6.5	16.8	22.6	36.0	39.0	
Peaches	6/ 4.1	7/	7/	7/	7/	
Other	6/ 8.1	13.5	34.7	35.3	117.1	
TOTAL OTHER THAN BERRIES	6/ 54.7	61.0	102.9	102.5	247.1	
TOTAL ALL FROZEN FRUITS	77.9	127.0	176.4	219.5	187.3	533.2

1/ Based on fiscal year beginning July 1.

2/ 1937-39 average; based on data from Western Canner & Packer, 1912 Year-book, earlier data not available.

3/ Preliminary estimate.

4/ Estimates furnished by commodity specialists of BAE.

5/ Processed weight.

6/ Data not available.

7/ Included in "other."



Table 39 - FROZEN FRUITS: PER CAPITA and AGGREGATE Civilian REQUIREMENTS for 1944-45 1/, Including Percentage Distribution by Quarters

		1944-45 Civilian Requirement									
		Aggregate									
Item	Per	: Sizes under 10 Lbs. 2/					: Sizes 10 Lbs. & Over 3/				
	Capita	Total	July--	Oct.--	Jan.--	Apr.--	July--	Oct.--	Jan.--	Apr.--	
			Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	
	1	2	3	4	5	6	7	8	9	10	
Pounds Mil. Lbs.		Percentage Distribution-----									
<u>4/</u>		<u>4/</u>									
Frozen )											
Berries)											
Strawberries	.3	45.0	15	29	30	26	46	17	20	17	
Raspberries	.2	20.0	18	26	31	25	40	24	22	14	
Blackberries	.1	12.0	18	25	31	26	20	32	34	14	
Blueberries and											
Huckleberries	.1	15.0	18	25	31	26	40	19	21	20	
Other Berries	.1	10.0	18	25	31	26	40	19	21	20	
TOTAL BERRIES	.8	102.0	-	-	-	-	-	-	-	-	
Other Fruits:											
Cherries	.3	40.0	18	20	35	27	38	20	27	15	
Apples	<u>5/</u>	<u>5/</u>	23	18	30	29	23	16	30	31	
Apricots	<u>5/</u>	<u>5/</u>	18	25	30	27	41	16	23	20	
Grape pulp &											
juice	.2	32.0	-	-	-	-	25	33	25	17	
Peaches	<u>5/</u>	<u>5/</u>	18	25	30	27	41	16	23	20	
Miscellaneous	<u>5/</u>	<u>5/</u>	18	26	30	26	29	29	25	17	
TOTAL OTHER	.8	105.0	-	-	-	-	-	-	-	-	
TOTAL	1.6	207.0	-	-	-	-	-	-	-	-	

1/ Year beginning July 1. Requirements apply to 1944 pack.

2/ These are the sizes used principally by families and institutional users.

3/ These are the sizes used principally by preservers, bakeries, and other industrial users.

4/ Processed weight.

5/ Will accept residual, provided total requirement for group is satisfied.

6/ Including such items as applesauce, currants, gooseberries, plums, prunes, rhubarb and fruits for salad.

The 1944-45 requirements reflect the approximate quantities of frozen fruits which were available to civilians during 1943-44. Lack of freezer facilities as previously stated will probably limit the pack for civilian use.

Recommended Quarterly Distribution of Frozen Fruits: The recommended quarterly distribution of the frozen fruit requirement is given in Table 39. It indicates the rate at which it is recommended supplies should be rationed or made available to ultimate consumers. Movement from processors' hands necessarily would be somewhat in advance of the quarterly distribution shown.

### Dried Fruits

#### Consumption and Demand

The annual consumption of dried fruit increased from an average of 5.7 pounds per capita for the period 1935-39 to 6.3 pounds in 1940-41. Since then, the heavy requirements for military and export purposes have diminished the quantities available to civilians. In the case of dates and figs, the decline in imports has also been a factor. The extremely favorable production of dried prunes and raisins will make possible a dried fruit total of about 345,800 tons of dried fruits (5.4 pounds per capita) for civilian use in 1943-44, or about 80 percent of the 1940-41 pre-war consumption. (Table 40).

In terms of aggregates, civilians consumed a total of 421,800 tons of dried fruits in 1940-41, as compared with a 1943-44 allocation of 345,800 tons. Dried pears were excluded entirely from the 1943-44 civilian allocation, while substantial reductions were also made in the case of apples, apricots, peaches, and raisins. Some additional quantities may be added to civilian supplies from the contingency reserve at a later period in the marketing year, provided that more urgent claims do not arise. (Table 41).

Normally, about 75 percent of the dried fruit consumption consists of prunes, raisins and currants. Of the remainder, more than half consists of dates and figs, while the cut fruits (peaches, apricots, apples and pears) account for the balance.

It is estimated that under the prevailing food and income situation, civilian demand for dried fruits in 1944-45 would total at least 433,800 tons in aggregate, or 6.7 pounds per capita if there were no rationing restrictions. This is based on an aggregate demand for 312,200 tons of raisins, currants, and prunes, 61,800 tons of dates and figs, and 59,800 tons of the cut fruits.

The demand for raisins and currants out of the 1944-45 pack will exceed the usage in recent years, largely because a substantial portion of the raisins for civilians is used in manufactured foods, principally bakery products. With the continued increase in the production of bread, as well as other bakery products, it is estimated that there will be at least a corresponding increase in the demand for raisins and currants. Since the maintenance of bread consumption is being encouraged by the

War Food Administration, the availability of raisins for bread will make possible greater variety in the types of bread produced and thereby stimulate consumption. The demand for dried prunes, although slightly in excess of the civilian allocation from the 1943 crop, is only about equal to the 1935-39 average disappearance. Consumption of dried prunes is primarily in the home, and it does not appear that the demand will increase to the same extent as that for raisins.

#### Problems of Distributing a Short Supply

Dried fruits lend themselves reasonably well to a rationing program. Successful rationing must be predicated on having a sufficient quantity of dried fruit available to make nationwide distribution feasible and on setting the point values at levels that will permit the fruit to move to consumers at a sufficiently rapid rate to prevent loss from spoilage. It is doubtful whether sufficient dried apricots, peaches, pears, apples, dates, and figs can be supplied to civilians for the duration of the war to make the rationing of these commodities practicable.

#### Determination of Requirements

In computing the civilian requirements for dried fruits during 1944-45, consideration was given to their dietary significance, to the problems of distributing a short supply, and to the kinds of dried fruits most needed for military and export purposes.

The anticipated supply situation, as well as the importance of the demand for raisins for use in bakery products and other processed foods, and the need for prunes for direct home use make it desirable to provide civilians with larger quantities of these two dried fruits than during the past two years.

It is assumed that U. S. civilians will receive from the 1944-45 production, as in the past two seasons, virtually the entire amount of the pack of dried figs, except for the amount allocated for Canadian civilian distribution which has been held to a per capita level comparable to that for U. S. civilians. It is also assumed that civilians will receive the bulk of the domestic pack of dates as other claims have been very small. This, however, will provide civilians with only about 7,400 tons, or .1 pound per capita, as compared with consumption of 25,000 to 29,000 tons annually in the pre-war years when there was a substantial volume of imports.

Although it is estimated that there will be a demand for substantial quantities of the cut fruits packed in 1944, it is unlikely that civilians will receive more than negligible quantities of these items. During the past two seasons virtually the entire production has been reserved for Government use, and it is expected that a similar condition will exist in 1944-45.



Thus, the aggregate 1944-45 civilian requirement for all dried fruits has been set at 320,000 tons as compared with an estimated demand of 433,800 tons and a peak usage of 421,800 tons in 1940. (Table 42). This requirement is equivalent to only 4.2 pounds per capita, as compared to an estimated demand of 6.7 pounds, and an average annual consumption of 5.7 pounds during the 1935-39 period. Specific requirements, amounting to 280,000 tons, have been submitted on raisins, currants, and dried prunes. The remaining 40,000 tons of the total requirement of 320,000 may be supplied from any combination of dates, figs, and other dried fruits.

Recommended Quarterly Distribution of Dried Fruits; Table 42 indicates the recommended distribution of dried fruits by quarters. It indicates the rate at which it is recommended supplies should be rationed or made available to ultimate consumers. Movement from processors' hands necessarily would be somewhat in advance of the quarterly distribution shown.

Table 40 - DRIED FRUITS: Civilian PER CAPITA ANNUAL CONSUMPTION for Specified Periods, and Estimated Civilian DEMAND for 1944-45 1/

Item	Apparent Civilian Consumption					Estimated Civilian Demand
	1932	1935-39	1941	1942	1943 2/	1944-45 3/
	1	2	3	4	5	6
-----Pounds Per Capita 4/-----						
Apples	.08	.16	.08	0	.04	.20
Apricots	.31	.25	.17	0	.02	.30
Dates	.39	.44	.21	.12	.11	.50
Figs	.29	.35	.38	.34	.43	.45
Peaches	.31	.29	.15	0	.06	.40
Pears	.02	.03	0	0	0	.02
Prunes	1.77	1.87	1.60	1.65	1.82	1.90
Raisins & Currants	2.31	2.28	1.92	2.17	2.86	2.90
TOTAL	5.48	5.67	4.51	4.28	5.34	6.67

1/ All data on basis of marketing year beginning September 1.

2/ Based on allocation from 1943 crop.

3/ Estimates furnished by commodity specialists of BAE.

4/ Packed processed basis.

Table 41 - DRIED FRUITS: Civilian AGGREGATE ANNUAL CONSUMPTION for Specified Periods, and Estimated Civilian DEMAND for 1944-45 1/

Item	Apparent Civilian Consumption					Estimated Civilian Demand
	1932	1935-39	1941	1942	1943 2/	1944-45 3/
	1	2	3	4	5	6
-----Thousand Tons 4/-----						
Apples	4.8	19.3	5.2	0	2.5	13.0
Apricots	19.4	16.1	11.5	0	1.0	19.5
Dates	24.8	28.8	13.9	8.1	7.4	32.5
Figs	17.9	22.6	25.1	22.4	27.8	29.3
Peaches	19.4	19.0	10.1	0	3.8	26.0
Pears	1.2	1.9	0	0	0	1.3
Prunes	111.1	121.6	106.5	107.5	118.2	123.6
Raisins & Currants	145.0	148.1	127.6	141.4	185.1	188.6
TOTAL	343.6	368.4	299.9	279.4	345.8	433.8

1/ All data on basis of marketing year beginning September 1.

2/ Based on allocation from 1943 crop.

3/ Estimates furnished by commodity specialists of BAE.

4/ Packed processed basis.

Table 42 - DRIED FRUITS: Civilian PER CAPITA and AGGREGATE  
Civilian ANNUAL REQUIREMENTS for 1944-45 1/,  
Including Percentage Distribution by Quarters

Item	1944-45 Civilian Requirement					
	Aggregate					
	Per	: October- : January-		: April- : July-		
	Capita	Total	: December	: March	: June	: September
	1	2	3	4	5	6
	Pounds 2/ Thous. tons			Percentage Distribution-----		
	2/					
Apples	3/	3/	35	35	18	12
Apricots	3/	3/	35	35	18	12
Dates	3/	3/	38	30	17	15
Figs	3/	3/	38	30	17	15
Peaches	3/	3/	35	35	13	12
Pears	3/	3/	35	35	18	12
Prunes	1.85	120.0	28	31	23	18
Raisins and Currants	2.46	160.0	43	23	16	18
Other	3/	3/	35	35	18	12
TOTAL	4.92	320.0	xxx	xxx	xxx	xxx

1/ Year beginning October 1. Requirements apply to 1944 pack.

2/ Processed weight.

3/ Will accept residual, provided total requirement for group is satisfied.



## PRESERVES

(Prepared by Isabelle M. Kelley)

### Summary

Adequate supplies of preserves for civilians are an essential part of our national food program since by contributing variety and palatability they help to insure the maintenance of the current high level of bread consumption. Decreased supplies of butter have increased the demand for other breadspreads, since the consumption of bread has increased since 1939 and bread is seldom eaten without spreads. Supplies of preserves somewhat below the level of unrestricted demand can be distributed in a reasonably equitable manner if supplies of the individual items are in fairly close relation to demand. The civilian requirement is placed at a level which will help to provide normal pre-war supplies of the major breadspreads and will allow a reasonably equitable distribution of all types of preserves.

### Significance to the Food Supply

Preserves are an essential part of our national food program. Their importance stems from the variety and palatability they add to other foods, especially cereal products. Preserves are not requested for their nutritional value but because adequate supplies of breadspreads must be available if civilians are to continue to consume relatively large quantities of bread. Increased supplies of preserves, peanut butter, and margarine will be necessary to maintain the pre-war level of the major breadspreads because of the reduced supplies of butter available to civilians. At a time when some of the more popular and palatable foods are available in substantially smaller quantities than civilians now can afford to buy, our food program should assure as much variety and palatability as possible in the less desirable, but highly nutritious foods available to civilians in relative abundance.

### Consumption and Demand

Annual consumption of preserves from the 1941 pack, the first year for which estimates are available, totaled 3.0 pounds per capita. This rate of consumption is believed to be slightly higher than in pre-war years. It is estimated that civilian supplies out of the 1942 pack were somewhat smaller than from the 1941 pack because of heavy military purchases. From the 1943 pack, however, civilians received the record supply of approximately 3.9 pounds per capita (Table 43).

Table 43. PRESERVES: Civilian PER CAPITA and AGGREGATE ANNUAL CONSUMPTION for Specified Periods, and Estimated DEMAND for 1944-45

	:	:	:	:	Estimated			
	:	:	:	:	Civilian			
Item	:	: Apparent Civilian Consumption 1/			Demand			
	:	1941	:	1942	:	1943	:	1944-45
	:	1	:	2	:	3	:	4
<hr/>								
	-	-	-	-	-	Per Capita (Pounds)	-	-
Jams		1.4		2/		1.5		2.2
Jellies		1.1		2/		1.2		1.4
Marmalade		0.1		2/		0.6		0.4
Fruit butters		0.4		2/		0.6		0.7
Total		3.0		2.7		3.9		4.7
<hr/>								
	-	-	-	-	-	Aggregate (Million Pounds)	-	-
Jams		200		2/		192		280
Jellies		142		2/		160		130
Marmalade		8		2/		73		52
Fruit butters		50		2/		72		90
Total		400		350		497		602

1/ Data not available prior to 1941. Estimates refer to pack year beginning in July of year shown.

2/ Not available by type of preserve. Total is tentative estimate as non-civilian purchases are not available.

Despite this amount it was necessary to place the distribution of preserves under rationing controls since unrestricted demand far exceeded the supply available. We are certain that the increased demand came primarily from the need for larger quantities for use as a breadspread and not because of the high level of consumer income since the consumption of preserves among families at all income levels is approximately the same.

It is estimated that unrestricted civilian demand would total 4.7 pounds of preserves per capita in the year beginning July 1, 1944. This estimate is based upon (1) the continuance of the present level of bread consumption (the estimated increase of 30 percent over 1939 levels in the consumption of commercially baked bread has been counterbalanced by a decline in the home baking of bread. The net increase in bread consumption is conservatively estimated at 5 percent above the 1939 level), and (2) the assumption that supplies of the most popular type, jam, and the most popular flavors (berry, peach, etc.) would be available in greater quantity than in 1943-44. The demand for marmalade in the year beginning July 1, 1944 is lower than indicated consumption in

1943-44 (Table 43). During 1943-44 large quantities of relatively low-priced marmalade (made from FDA pulp) has been available and has sold well in a market formerly using but small quantities of marmalade (8 million pounds in 1941-42). When these supplies are exhausted, the marmalade reaching civilians will be at higher prices. This is expected to curtail civilian demand for marmalade.

#### Problems of Distributing a Short Supply

It would be desirable to meet the unrestricted civilian demand for preserves in order to prevent inequitable distribution of a short supply from discouraging the continued consumption of bread. However, a supply somewhat below the level necessary to completely satisfy demand can be equitably distributed under rationing, if supplies of the individual items are in fairly close relation to the corresponding civilian demand. Currently, the distribution of jam, our most popular preserve is spotty and irregular under rationing because demand far exceeds the supply available.

#### Determination of Requirements

The civilian requirement for preserves is placed at the level necessary to supply, together with available quantities of butter, oleomargarine and peanut butter, the major breadspreads at close to pre-war levels. This quantity, if the individual items are supplied in the proportions requested, will insure, in our opinion, a reasonably equitable distribution of preserves to civilians. The requirement totals 539 million pounds (4.1 pounds per capita) and requests substantially larger quantities of jams and smaller quantities of marmalades than were available last year.

The per capita and aggregate requirements for the individual items are shown in Table 44.

Table 44. PRESERVES: Civilian PER CAPITA and AGGREGATE ANNUAL REQUIREMENT for 1944-45

Item	1944-45 Civilian Requirement	
	: Per Capita	: Aggregate
	Pounds	Million Pounds
Jams	1.8	240
Jellies	1.3	169
Marmalade	0.4	52
Apple butter	0.6	78
Total	4.1	539



## VEGETABLES

(Prepared by Oscar R. LeBeau and Wm. R. Whitacre)

### Summary

Vegetables comprise a very large and important segment of the civilian diet. They contribute outstandingly not only to its variety and palatability but also to its nutritional adequacy.

While the bulk of the total vegetable supply is marketed in fresh form, increasing quantities are processed annually into canned, frozen, and dehydrated products. Due to the high level of consumer income, and to the limited supplies of meats and other foods, civilian demand for vegetables of all types is expected to reach record levels during 1944-45.

Vegetable supplies may be considered as originating from four sources; namely (a) reported commercial, (b) market gardens, (c) farm home gardens, and (d) non-farm home gardens. The USDA Crop Reporting Board publishes production data only regarding the "reported commercial" acreage. To provide an overall view of the total vegetable needs of civilians the subsequent section on fresh vegetables includes an unofficial estimate of the volume of vegetables supplied from the other three sources.

The chief problems of marketing a short supply of vegetables are to obtain uniform distribution, to maintain adequate price control, and to achieve the optimum relationship between fresh and processed supplies. Rationing of fresh produce is not recommended because of the scattered areas of production and the high perishability of most of the items. Successful rationing of processed vegetables is contingent upon having an adequate supply to permit uniform operation of the rationing process.

For purposes of this discussion, vegetables have been grouped as (a) leafy, green, and yellow, (b) tomatoes, and (c) other vegetables. Within these groups considerable latitude is allowed in filling the requirement. Specific requirements are made for the group as a whole and for the most important items within the group. The group total may be made up of any combination of the other listed items. Shortages are therefore concentrated in those commodities that are least important from a nutritive standpoint and in those which normally are consumed primarily by higher income groups, who as a rule have the greatest opportunity for procuring substitute food.

The 1944-45 requirement of fresh vegetables for civilian use from the reported commercial production approximates the quantity available to civilians during 1942. The requirement takes into consideration the

projected goals for farm and non-farm garden production which anticipate increases over 1943. These goals may be realized if favorable growing conditions prevail and there is increased participation in the victory garden program, together with better yields as the result of experience gained in gardening. If these goals are not realized and supplies from these sources are not larger than in 1943, some upward revisions in civilian requirements for vegetables from commercial sources may be required.

In the case of canned vegetables, the civilian requirement for the fiscal year 1944-45 has been held at approximately the quantity distributed to civilians during the preceding year or to about 70 percent of the estimated demand. This quantity is regarded as essential to furnish civilians with adequate canned products during off-seasons and to support a satisfactory rationing program.

The 1944-45 frozen vegetable requirement for civilians is designed to supplement the limited supply of canned vegetables and to provide a satisfactory outlet for some of the heavy supplies of fresh produce. The stringent cold storage situation will make it impossible to provide as large quantities of frozen vegetables as civilians would like to purchase.

The 1944-45 dehydrated vegetable requirement for civilians has been limited to the quantity of dehydrated carrots, white potatoes, and onions which it is expected will be needed in the production of dry mix soups, catsup, and other processed foods.

#### Significance to Civilian Food Supply

Vegetables constitute one of the most important commodity groups in the civilian food supply. They make important contributions of Vitamin A, ascorbic acid, and certain minerals. Equally significant is the role they play in adding variety and palatability to the diet.

Leafy, green and yellow vegetables: These vegetables are an excellent source of Vitamin A and ascorbic acid. Approximately one-third of Vitamin A and one-fifth of the ascorbic acid in the 1943 diet were obtained from this source. These vegetables furnish appreciable amounts of minerals and other vitamins also. They are particularly important as a source of calcium in those areas where the milk supply is inadequate.

Tomatoes: Tomatoes are roughly comparable with citrus fruits in nutritive value although the ascorbic acid in tomatoes is less concentrated. There is much less destruction of this vitamin in the preparation and serving of tomatoes and citrus than is the case with other foods containing this vitamin. Tomatoes are highly essential, especially to the low income groups, when citrus fruits are in short

supply. Tomatoes are used in a variety of ways and contribute to greater use of cereal products, as sauces and seasoning.

Other Vegetables: These provide fairly substantial quantities of Vitamin A, ascorbic acid, and iron although they are inferior in these respects to the leafy, green, and yellow vegetables. They also contribute variety to the diet and furnish important supplementary foods when greens are in short supply. Onions are especially important for their flavor as they serve to augment the palatability of some of the more staple foods such as potatoes and meat.

Related Products: Included in this group are canned baby foods, soups, pickles, and baked beans. Because of their convenient, ready-prepared, and sterile nature, baby foods are extremely important as a source of high quality food for infants. Pickles have little to recommend them on a strictly nutritional basis although they are popular as appetizers and as a means of lending variety to meals. Canned baked beans and canned soups are important principally as convenience foods for use by busy individuals who otherwise would consume fewer of the primary staple components.

Canned Vegetables: Canned vegetables are important as a means of supplementing the off-season supplies of fresh vegetables. Canned beans, peas, tomatoes, and a number of others are significant as foods to low income groups since they are frequently less expensive and more readily available than fresh vegetables. Canned vegetables also provide an economic source of ready prepared vegetables for hotels, restaurants, and other institutional users.

Frozen Vegetables: Frozen vegetables are an important supplementary source of vegetables throughout the year. Their use has been expanded remarkably since the outbreak of the war. This has been due partly to the limitation order on the use of tin for canned vegetables and partly to the improved quality of the frozen foods available. Limiting factors to an even more rapid expansion of this industry are the stringent cold storage situation and the lack of critical materials for wholesale and retail refrigeration units.

Dehydrated Vegetables: Dehydrated vegetables contribute little to the recommended dietary allowances primarily because consumption has been small to date compared with other forms of vegetables. With the possible exception of dehydrated sweet potatoes and onions which were distributed in small quantities prior to the war, practically none of the other dehydrated vegetables have been distributed for direct home consumption. The primary use of all dehydrated vegetables



by civilians has been in the manufacture of dry mix and dehydrated soups. The production of these soups for civilian distribution has expanded rapidly in the past few years and it is expected that this trend will continue as the War Food Administration has set as a goal for the industry in 1944-45 a considerably increased rate of production for civilians.

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To facilitate discussion of the large number of commodities involved, the remainder of the rationale for the 1944-45 civilian vegetable requirements is presented in four sections as follows: (A) Fresh Vegetables, (B) Canned Vegetables and Related Products, (C) Frozen Vegetables, and (D) Dehydrated Vegetables. Each section in turn deals with (1) the consumption and demand for the respective vegetables, (2) the problems of distributing a short supply, and (3) the determination of the requirements.

### Fresh Vegetables

#### Consumption and Demand

The civilian consumption of fresh vegetables from reported commercial production and other sources is estimated to have increased steadily from an average of 212 pounds per capita in 1935-39 to about 242 pounds in 1942. Less favorable growing conditions in 1943 resulted in a per capita consumption of about 237 pounds of which about 73 pounds was supplied from "reported commercial" production, and about 164 pounds from other sources. (Table 45) The total civilian demand for fresh vegetables from all sources during 1944-45 is estimated at 270.3 pounds per capita. (Table 46)

The USDA Crop Reporting Board publishes production data only regarding the "reported commercial" acreage. To obtain an overall picture of the total consumption and demand of fresh vegetables by civilians, data are needed also regarding the quantities procured from market gardens, farm home gardens, and non-farm home gardens. Unofficial estimates by commodity specialists of the Bureau of Agricultural Economics based on U. S. Census data and other surveys indicate that in 1942 and 1943 market and home gardens accounted for about two-thirds of the total supply of fresh vegetables available to civilians. The proportion of the total supply coming from these unreported sources was larger in 1942 and 1943 than in previous years because of the emphasis on "victory" gardens and the vast supplies of commercially-grown vegetables required for processing. The health-giving foods

from these gardens have been an invaluable factor in the maintenance of the present high level of civilian nutrition in this nation.

Corresponding aggregates are presented in Tables 47 and 48. Further consumption and demand data are discussed under the headings: (a) leafy, green, and yellow, (b) tomatoes, (c) onions, and (d) other vegetables.

Leafy, Green, and Yellow: Consumption of leafy, green, and yellow vegetables from all sources has ranged from about 93 pounds per capita for the period 1935-39 to about 106 pounds in 1942 and in 1943. Per capita supplies of leafy, green, and yellow vegetables from reported commercial production has ranged between 40 and 42 pounds per capita during the last ten years. During the same period it is estimated that market and home gardens provided an additional supply ranging from 52 to 64 pounds per capita. (Table 46)

Civilian demand in 1944-45 is expected to reach 121.4 pounds per capita of which 53.3 would be from reported commercial acreage. Some of the factors which tend to raise demand to record levels are the continued rationing of canned vegetables, increased demand for fresh vegetables for home canning purposes from those who do not have home gardens, and high consumer incomes.

Tomatoes: Total civilian consumption of fresh tomatoes has ranged between 30 and 36 pounds per capita during the last decade. Of this quantity approximately 10 pounds normally have been supplied from reported commercial production each year, while the remainder has come from market gardens and home gardens. Because of increased significance attached to tomatoes as an inexpensive source of ascorbic acid and the increased purchasing power of many families, it is expected that the civilian demand for fresh tomatoes during 1944-45 will approximate 38.9 pounds per capita of which 13.0 would come from reported commercial acreage. Tomatoes are in demand for home canning purposes because of the relative ease with which they can be processed.

Onions: The civilian consumption of fresh dry onions has ranged between 21 and 25 pounds per capita for the last decade. Reported commercial acreage has accounted for about 10 pounds each year. It is estimated that the civilian demand in 1944-45 for onions from all sources will amount to 26.0 pounds per capita, of which 13.6 will be from reported commercial acreage.

Other Vegetables: The civilian consumption of fresh vegetables, other than leafy, green, and yellow, tomatoes, and onions, has increased from 66 pounds in 1935-39 to 77 pounds per capita in 1942. Supplies from reported commercial acreage during the same period ranged from 12 to 16 pounds per annum. It is estimated that the

civilian demand for this group of vegetables in 1944-45 will amount to about 84 pounds per capita of which 19.3 will be from reported commercial production.

#### Problems of Distributing a Short Supply

The best method of achieving a uniform distribution of fresh vegetables to all segments of the population is to have a supply that approximates the civilian demand. Only by having a reasonably adequate supply can low income groups and remote areas obtain fresh produce in the quantity needed. Inadequate supplies lead also to a general lowering of marketing standards and tend to encourage black market activities. Compliance regarding ceiling price is more readily attained when the supply is not too far short of the demand level. Rationing of fresh vegetables is not recommended because of the high perishability of most items and the difficulty of achieving control over the scattered sources of supply.

Federal assistance in the form of transportation subsidies may be desirable in some instances to obtain satisfactory regional distribution of a short supply. In the case of onions a limitation order on the movement and use of the supply was helpful in obtaining better seasonal and regional distribution of the short 1943 late crop. Repetition of this plan may be useful in the future for commodities where conservation and equitable distribution of a short supply is of importance to a large number of household and industrial users.

#### Determination of Requirements

In determining the civilian requirement for fresh vegetables to be supplied from the "reported commercial" acreage during 1944-45, it is necessary to make some assumptions regarding the quantities that may be expected from market garden, farm home garden, and non-farm home garden production. This has been done with the aid of commodity specialists of the Bureau of Agricultural Economics. The resulting estimates are recorded in Tables 49 and 50.

Normally the market garden or the unreported commercial production of vegetables that occurs near towns and cities accounts for at least 75 percent as much fresh produce for direct civilian consumption as does the reported commercial acreage. While there is no accurate basis for estimating the volume of fresh produce that may be expected from market gardens in 1944-45, it is assumed that the production will be approximately the same as that for 1943.

In the case of farm and non-farm home garden production in 1944-45, the estimates used reflect goals. In the case of non-farm gardens it is hoped that the efforts of WPA to encourage further participation in



the victory garden program combined with more favorable weather conditions will increase supplies from these sources, despite current low point or zero point values for processed vegetables. For farm gardens the estimates anticipate production at approximately the 1942 level. This would be larger than supplies from this source in 1943 and the increase is based primarily on anticipations of more favorable weather conditions. If these goals are not realized and supplies from these sources are not larger than in 1943, some upward revisions in civilian requirements for vegetables from commercial sources may be necessary.

The overall need for fresh vegetables from all sources for civilians during 1944-45 has been placed at 16,185,000 tons (or 250.7 pounds per capita) as compared with an estimated overall civilian demand of 17,459,000 tons (or 270.3 pounds per capita). On the basis of the aforesaid assumptions, it is expected that about 11,009,000 tons (or 171.1 pounds per capita) will be available for civilians from market and home garden production (Tables 49 and 50). This would leave 5,176,000 tons (or 79.6 pounds per capita) to be supplied from reported commercial production. This requirement is equivalent to about 80 percent of the estimated demand for fresh vegetables from this source. This quantity of fresh produce is regarded as essential to assure a reasonable distribution of fresh vegetables and to avoid undue pressure on the supply of rationed processed vegetables.

Leafy, Green, and Yellow: The civilian requirement from reported commercial production for fresh vegetables in this group during 1944-45 has been placed at 2,770,000 tons (or 42.6 pounds per capita). This requirement is based on the assumption that an additional 4,381,000 tons (or 68.1 pounds per capita) of leafy, green, and yellow vegetables will be available to civilians from market and home garden production, making a total supply for civilians of 7,151,000 tons (or 110.7 pounds per capita). This group includes such important vegetables as green and wax beans, cabbage, carrots, peas, and spinach whose contributions to the adequacy of the civilian diet are highly significant to all income groups.

Tomatoes: The 1944-45 civilian requirement for fresh tomatoes from reported commercial production has been set at 715,000 tons (or 11 pounds per capita). In arriving at this requirement however it has been assumed that an additional 1,662,000 tons (or 25.9 pounds per capita) would be available from market and home gardens making a total supply of 2,377,000 tons (or 36.9 pounds per capita). Supplementary supplies from market and "victory" gardens are extremely significant in this instance. Civilians must rely heavily on this commodity for an adequate supply of ascorbic acid. Vine-ripened tomatoes are a very good and relatively inexpensive source of this nutrient. Equally important is the fact that tomatoes are one of the easiest and most desirable vegetables to can at home. Many families that do not have home gardens will purchase tomatoes for such canning.

Onions: The 1944-45 civilian requirement for fresh onions from reported commercial production is given at 813,000 tons (or 12.5 pounds per capita). This requirement assumes that an additional 798,000 tons (or 12.4 pounds per capita) will be available from market and home gardens, making a total supply for civilians of 1,611,000 tons (or 24.9 pounds per capita). The lower than normal supply of fresh dry onions during 1943-44 resulted in a very spotty distribution of this commodity and made onions the most sought after vegetable during the season. As a flavoring agent onions go far in increasing the palatability of the less popular cuts of meat and in encouraging consumption of larger quantities of potatoes.

Other Vegetables: The 1944-45 civilian requirement from reported commercial production for fresh vegetables, other than the leafy, green, and yellow group, tomatoes, and onions, has been set at 878,000 tons (or 13.5 pounds per capita). In determining this requirement, it has been assumed that 4,168,000 tons (or 64.7 pounds per capita) would be available from market and home gardens, making a total supply of 5,046,000 tons (or 78.2 pounds per capita). Celery is the most important item in this group in terms of volume; it alone accounts for one-half of the requirement for reported commercial production. Next in volume are cauliflower, sweet corn, cucumbers, and beets (Table 49).

Table 45 - FRESH VEGETABLES: Civilian PER CAPITA ANNUAL CONSUMPTION from Reported Commercial Production for Specified Periods, and Estimated DEMAND for 1944-45

Item and Source	: Apparent Civilian Consumption 1/					: Estimated Civilian Demand
	: 1932	: 1935-39	: 1941	: 1942	: 1943 2/	1944-45 3/
	: 1	2	3	4	5	6
-----Pounds Per Capita 4/ 5/ 6/-----						
From Reported Commercial Production Only 7/						
<u>Leafy, green, and yellow</u>						
Asparagus	1.2	1.0	1.1	1.0	.9	1.3
Beans, green lima	.3	.3	.4	.4	.2	.4
Beans, snap	2.7	3.3	3.0	3.4	3.6	4.5
Cabbage	15.0	15.5	13.7	15.3	14.2	18.0
Carrots	4.1	5.5	6.0	5.7	7.1	8.0
Kale	.2	.1	.1	.04	.1	.1
Lettuce	9.7	11.0	12.1	12.0	11.8	16.0
Peas	2.0	2.0	1.7	1.2	1.2	2.0
Peppers	.6	1.0	1.0	.9	.8	1.2
Spinach	2.0	2.0	1.3	1.6	1.5	1.8
Total	37.8	41.8	40.4	41.6	41.4	53.3
Tomatoes	9.5	10.0	10.1	10.8	10.5	13.0
Onions	9.0	10.5	10.2	10.3	9.4	13.6
<u>Other Vegetables</u>						
Artichokes	.2	.3	.2	.3	.2	.3
Beets	.8	.8	.8	.5	.3	1.1
Cauliflower	2.2	2.3	2.2	2.5	1.7	2.8
Celery	7.0	7.5	8.9	8.1	7.1	10.0
Corn (sweet)	1.4	1.2	1.5	1.2	1.0	2.0
Cucumbers	1.6	1.7	1.8	1.7	1.2	2.3
Eggplant	.3	.3	.3	.2	.2	.3
Garlic	8/	8/	.2	.2	.2	.2
Shallots	8/	8/	.1	.1	.1	.3
Other	9/	9/	9/	9/	9/	9/
Total	13.5	14.2	16.0	14.8	12.0	19.3
Grand Total	69.8	76.5	76.7	77.5	73.3	99.2

1/ Calendar year basis.

2/ Preliminary.

3/ Estimates furnished by commodity specialists of B.E.

4/ Farm weight basis.

5/ Includes imports.

6/ Based on total civilian population.

7/ Based on official estimates furnished by commodity specialists of B.E.

8/ Not available.

9/ Total supply of "other vegetables" included in market and farm garden supplies on next page.



Table 46 - FRESH VEGETABLES: Estimated PER CAPITA ANNUAL SUPPLY Available to Civilians from MARKET and HOME GARDEN PRODUCTION, in Addition to Apparent Civilian Consumption from Reported Commercial Production, for Specified Years, and Estimated Civilian DEMAND for 1944-45

Vegetable Group and Source	Estimated Annual Civilian Supply 1/	Estimated Civilian Demand 3/				
	1932	1935-39	1941	1942	1943	1944-45
	1	2	3	4	5	6
-----Pounds Per Capita 4/ 5/ 6/-----						
<u>Leafy, Green &amp; Yellow Vegetables: 7/</u>						
Market Garden	19.2	21.8	21.5	25.1	21.0	21.0
Farm Home Garden	26.8	24.3	25.2	27.9	25.8	27.3
Non-Farm Home Garden	5.5	5.5	5.5	11.6	17.8	19.8
Subtotal	51.5	51.6	52.2	64.6	64.6	68.1
Reported Commercial	37.8	41.8	40.4	41.6	41.4	53.3
Total	89.3	93.4	92.6	106.2	106.0	121.4
<u>Tomatoes:</u>						
Market Garden	6.9	8.2	9.3	8.6	8.2	7.8 8/
Farm Home Garden	11.1	10.1	10.4	10.8	10.9	11.3 8/
Non-Farm Home Garden	1.9	1.9	1.9	4.0	6.1	6.8 8/
Subtotal	19.9	20.2	21.6	23.4	25.2	25.9
Reported Commercial	9.5	10.0	10.1	10.8	10.5	13.0
Total	29.4	30.2	31.7	34.2	35.7	38.9
<u>Onions:</u>						
Market Garden	5.6	6.5	6.3	7.2	5.2	5.3 8/
Farm Home Garden	6.4	5.7	6.7	6.9	6.7	7.1 8/
Non-Farm Home Garden	9/	9/	9/	9/	9/	9/
Subtotal	12.0	12.2	13.0	14.1	11.9	12.4
Reported Commercial	9.0	10.5	10.2	10.3	9.4	13.6
Total	21.0	22.7	23.2	24.4	21.3	26.0
<u>Other Vegetables: 10/ 11/</u>						
Market Garden	22.2	25.6	27.5	29.5	26.3	25.8 8/
Farm Home Garden	24.6	21.8	23.6	25.1	24.6	26.1 8/
Non-Farm Home Garden	4.2	4.2	4.2	7.8	11.6	12.8 8/
Subtotal	51.0	51.6	55.3	62.4	62.5	64.7
Reported Commercial	13.5	14.2	16.0	14.8	12.0	19.3
Total	64.5	65.8	71.3	77.2	74.5	84.0
<u>Total-All Vegetables 11/</u>						
Market Garden	53.9	62.1	64.6	70.3	60.7	59.9 8/
Farm Home Garden	68.9	61.9	65.9	70.7	68.0	71.8 8/
Non-Farm Home Garden	11.6	11.6	11.6	23.4	35.5	39.4 8/
Subtotal	134.4	135.6	142.1	164.4	164.2	171.1
Reported Commercial	69.8	76.5	76.7	77.5	73.3	99.2
Total	204.2	212.1	218.8	242.0	237.5	270.3

1/ Calendar year basis. 2/ Preliminary. 3/ Estimates furnished by commodity specialists of B.E. 4/ Farm weight basis. 5/ Includes imports. 6/ Based on total civilian population. 7/ Including asparagus, lima beans, snap beans, cabbage, carrots, kale, lettuce, peas, peppers, and spinach. 8/ Unofficial estimates of supply furnished by commodity specialists of B.E. 9/ Included under "other vegetables." 10/ Including beets, cauliflower, celery, sweet corn, cucumbers, eggplant, and all minor vegetables. 11/ Excluding small fruit, melons, and potatoes.

Table 47 - FRESH VEGETABLES: Civilian AGGREGATE ANNUAL CONSUMPTION  
from Reported Commercial Production (and  
from other sources) for Specified Periods,  
and Estimated Civilian DEMAND for 1944-45

Item	: Apparent Civilian Consumption 1/					: Estimated
	: 1932	: 1935-39	: 1941	: 1942	: 1943 2/	: Civilian Demand
	: 1	: 2	: 3	: 4	: 5	: 1944-45 3/
-----Thousand Tons 4/ 5/ 6/-----						
From Reported Commercial Production Only						
<u>Leafy, Green, &amp; Yellow</u>						
Asparagus	75.0	62.5	73.1	68.2	57.5	84.5
Beans, green lima	20.0	21.5	25.9	25.2	15.8	26.0
Beans, snap	170.5	211.0	202.3	225.4	235.4	292.6
Cabbage	937.5	1006.0	909.5	1013.2	922.1	1170.5
Carrots	258.0	356.0	395.3	376.1	460.5	520.2
Kale	9.5	5.0	7.5	2.9	4.6	6.5
Lettuce-escarole	606.0	717.0	801.5	793.9	761.9	1040.4
Peas	121.5	132.0	112.4	78.3	76.1	130.1
Peppers	49.5	64.0	65.1	60.8	53.1	78.0
Spinach	124.5	128.0	90.6	107.0	95.6	117.0
Total	2372.0	2703.0	2683.2	2751.0	2682.6	3465.8
Tomatoes	597.0	646.0	671.6	717.2	678.7	845.4
Onions	559.0	680.0	675.8	680.1	608.0	884.4
<u>Other</u>						
Artichokes	11.5	19.0	14.0	17.3	16.5	19.5
Beets	51.0	53.0	50.7	30.5	17.6	71.5
Cauliflower	135.0	149.0	149.0	163.4	113.4	182.1
Celery	441.5	483.5	591.6	538.4	463.3	650.3
Corn (sweet)	86.5	77.5	99.1	80.9	65.9	130.1
Cucumbers	100.5	113.0	117.7	111.2	76.3	149.6
Eggplant	17.0	18.0	19.0	13.4	11.7	19.5
Garlic	7/	7/	11.3	13.6	9.7	13.0
Shallots	7/	7/	6.2	8.5	5.6	19.5
Other	8/	8/	8/	8/	8/	-
Total	843.0	913.1	1058.6	977.2	730.0	1255.1
<u>Total-All Vegetables</u>						
	4371.0	4942.0	5089.2	5125.5	4749.3	6450.7

- 1/ For additional supplies of fresh vegetables estimated available from market gardens, farm gardens and non-farm gardens see table on following page.
- 2/ Preliminary.
- 3/ Estimates furnished by commodity specialists of BAE.
- 4/ Farm weight basis.
- 5/ Includes imports.
- 6/ Based on total civilian population.
- 7/ Not available.
- 8/ Small but indeterminate quantities of "other vegetables" available from reported commercial production. Total supply of "other vegetables" included in market and farm garden supplies.

Table 48 - FRESH VEGETABLES: Estimated AGGREGATE ANNUAL SUPPLY Available to Civilians from MARKET and HOME GARDEN Production, in Addition to Apparent Civilian Consumption from Reported Commercial Production for Specified Years, and Estimated Civilian DEMAND for 1944-45

Vegetable Group and Source	Estimated Annual Civilian Supply 1/					Estimated Civilian Demand 3/
	1932	1935-39	1941	1942	1943 2/	1944-45 3/
	1	2	3	4	5	6
-----Thousands of Tons 4/ 5/ 6/-----						
<u>Leafy, Green &amp; Yellow Vegetables: 7/</u>						
Market Garden	1208	1412	1423	1660	1362	1350 8/
Farm Home Garden	1384	1578	1672	1844	1674	1758 8/
Non-Farm Home Garden	346	358	365	768	1157	1273 8/
Subtotal	3238	3348	3460	4272	4193	4381
Reported Commercial	2372	2703	2683	2751	2682	3466
Total	5610	6051	6143	7023	6875	7847
<u>Tomatoes:</u>						
Market Garden	431	529	619	563	530	500 8/
Farm Home Garden	698	656	693	715	704	724 8/
Non-Farm Home Garden	117	121	123	262	398	438 8/
Subtotal	1246	1306	1435	1540	1632	1662
Reported Commercial	597	646	671	717	679	845
Total	1843	1952	2106	2257	2311	2507
<u>Onions:</u>						
Market Garden	354	422	416	473	340	340 8/
Farm Home Garden	401	369	444	459	435	458 8/
Non-Farm Home Garden	9/	9/	9/	9/	9/	9/
Subtotal	755	791	860	932	775	798
Reported Commercial	559	680	676	680	608	884
Total	1314	1471	1536	1612	1383	1682
<u>Other Vegetables: 10/ 11/</u>						
Market Garden	1392	1659	1821	1953	1706	1660 8/
Farm Home Garden	1545	1414	1563	1663	1599	1682 8/
Non-Farm Home Garden	262	270	276	518	751	826 8/
Subtotal	3199	3343	3660	4134	4056	4168
Reported Commercial	843	913	1059	977	780	1255
Total	4042	4256	4719	5111	4836	5423
<u>Total-All Vegetables 11/</u>						
Market Garden	3385	4022	4279	4649	3938	3850 8/
Farm Home Garden	4328	4017	4372	4681	4412	4622 8/
Non-Farm Home Garden	725	749	764	1548	2306	2537 8/
Subtotal	8438	8788	9415	10878	10656	11009
Reported Commercial	4371	4942	5089	5125	4749	6450
Total	12809	13730	14504	16003	15405	17459

1/ Calendar year basis. 2/ Preliminary. 3/ Estimates furnished by commodity specialists of BAE. 4/ Farm weight basis. 5/ Includes imports. 6/ Based on total civilian population. 7/ Including asparagus, lima beans, snap beans, cabbage, carrots, kale, lettuce, peas, peppers, and spinach. 8/ Unofficial estimates of supply furnished by commodity specialists of BAE. 9/ Included under "Other vegetables." 10/ Including beets, cauliflower, celery, sweet corn, cucumbers, eggplant, and all minor vegetables. 11/ Excluding small fruit, melons, and potatoes.



Table 49 - FRESH VEGETABLES: Civilian PER CAPITA and AGGREGATE Annual Requirements from Reported Commercial Production for 1944-45 1/

Item	1944-45 Civilian Requirement	
	Per Capita	Total
	1	2
	Pounds <u>2/</u>	Thousand Tons <u>2/</u>
From Reported Commercial Production Only		
<u>Leafy, Green &amp; Yellow</u>		
Asparagus	.8	52.0
Beans, green lima	.3	19.5
Beans, snap	3.8	247.1
Cabbage	16.0	1040.5
Carrots	6.0	390.2
Kale	.1	6.5
Lettuce	11.0	715.3
Peas	2.0	130.1
Peppers	.9	58.5
Spinach	1.7	110.5
Total	42.6	2770.2
<u>Tomatoes</u>	11.0	715.3
<u>Onions</u>	12.5	<u>3/</u> 812.8
<u>Other</u>		
Artichokes	.2	13.0
Beets	.7	45.5
Cauliflower	2.2	143.1
Celery	7.5	487.7
Corn (sweet)	1.2	78.0
Cucumbers	1.2	78.0
Eggplant	.2	13.0
Garlic	.2	13.0
Shallots	.1	6.5
Other	<u>4/</u>	<u>4/</u>
Total	13.5	877.8
Grand Total	79.6	5176.1

1/ These requirements from reported commercial production are based on the assumption that additional supplies of fresh vegetables will be available from market garden, farm garden and non-farm garden production as indicated on the following page.

2/ Farm weight basis.

3/ Estimated quarterly requirements for fresh onions:

Quarter	Tons
July-to-September	201,600
October-to-December	225,700
January-to-March	193,500
April-to-June	185,400

4/ No specific requirement requested.

Table 50 - FRESH VEGETABLES: COMPARISON OF CIVILIAN PER CAPITA and AGGREGATE ANNUAL REQUIREMENTS From Reported Commercial Production for 1944-45 with Indicated Supplies From Market and Home Garden Production 1/

Vegetable Group and Source	Per Capita <u>2/</u>	Aggregate
	1 Pounds <u>3/</u>	2 Thousand Tons <u>3/</u>
<u>Leafy Green &amp; Yellow Vegetables: <u>4/</u></u>		
Market Garden <u>5/</u>	21.0	1350
Farm Home Garden <u>5/</u>	27.3	1758
Non-Farm Garden <u>5/</u>	19.8	1273
Subtotal	68.1	4381
Reported Commercial <u>6/</u>	42.6	2770
Total	110.7	7151
<u>Tomatoes:</u>		
Market Garden <u>5/</u>	7.8	500
Farm Home Garden <u>5/</u>	11.3	724
Non-Farm Home Garden <u>5/</u>	6.8	438
Subtotal	25.9	1662
Reported Commercial <u>6/</u>	11.0	715
Total	36.9	2377
<u>Onions:</u>		
Market Garden <u>5/</u>	5.3	340
Farm Home Garden <u>5/</u>	7.1	458
Non-Farm Home Garden <u>5/</u>	7/	7/
Subtotal	12.4	798
Reported Commercial <u>6/</u>	12.5	813
Total	24.9	1611
<u>Other Vegetables <u>8/ 9/</u></u>		
Market Garden <u>5/</u>	25.8	1660
Farm Home Garden <u>5/</u>	26.1	1682
Non-Farm Home Garden <u>5/</u>	12.8	826
Subtotal	64.7	4168
Reported Commercial <u>6/</u>	13.5	876
Total	78.2	5046
<u>Total-All Vegetables <u>9/</u></u>		
Market Garden <u>5/</u>	59.9	3850
Farm Home Garden <u>5/</u>	71.8	4622
Non-Farm Garden <u>5/</u>	39.4	2537
Subtotal	171.1	11009
Reported Commercial <u>6/</u>	79.6	5176
Total	250.7	16185

- 1/ Year beginning July 1.
- 2/ Based on total civilian population.
- 3/ Farm weight.
- 4/ Including asparagus, lima beans, snap beans, cabbage, carrots, kale, lettuce, peas, peppers and spinach.
- 5/ Based on production goals which may not be realized.
- 6/ As indicated in the preceding table.
- 7/ Included under "other vegetables."
- 8/ Including beets, cauliflower, celery, sweet corn, cucumbers, eggplant, and all minor vegetables.
- 9/ Excluding small fruit, melons and potatoes.

Consumption and Demand

Civilian consumption of canned vegetables and related products has increased steadily over the past decade. Aside from year to year variations due to the influence of changes in prices and the level of consumer income there has been a decided trend toward higher consumption of processed vegetables.

Annual consumption of canned vegetables increased from an average of 30.0 pounds per capita during 1935-39 to a peak of 38.9 pounds per capita in 1942. Since then the heavy requirements for military and export purposes and the need for restricting the use of tin have diminished the quantities available to civilians to a point where in 1943-44 they were allocated only 29.2 pounds of canned vegetables per capita. (Table 51) In terms of aggregates, civilians consumed a total of 174.2 million cases (basis 24/2's) in the peak year 1942 compared with an allocation of 131.3 million cases in 1943-44 and an average annual consumption of 132.0 million cases during 1935-39. (Table 52)

Total demand for canned vegetables for civilians in 1944-45 has been estimated at 194.3 million cases, or 44.2 pounds per capita.

Leafy, Green, and Yellow: Civilian demand for canned leafy, green, and yellow vegetables during 1944-45 is estimated at 62.7 million cases compared with a peak consumption of 61.9 million cases out of the 1942 pack, an estimated civilian supply of 49.8 million cases in 1943-44 and an average civilian consumption during 1935-39 of 40.7 million cases. The most important items within this group are canned peas and snap beans, which account for about 74 percent of the estimated demand. Dominant factors affecting the demand for this group of canned items are (a) the high retail prices for fresh vegetables which has caused low income groups to shift partly to less expensive canned items, (b) increased incomes have brought people into the market who formerly could afford few, if any, of these canned items, and (c) the high demand for prepared vegetables among employed housewives who may be able to afford to buy fresh vegetables but do not have the time to prepare them.

Tomatoes: Civilian consumption of canned tomatoes and tomato products increased from an average of 49.9 million cases in 1935-39 to 70.4 million cases in 1942 but dropped to 46.9 in 1943. Heavy military and export requirements were largely responsible for the lower than normal civilian supply of commercially canned whole tomatoes and tomato juice and catsup from the 1943 pack.

Demand for canned tomatoes and tomato products during 1944-45 is estimated at 72.7 million cases. (Table 8) The demand for commercially-packed canned tomato products has been eased by the increase in home canning, but the popularity of these items makes it difficult to satisfy the total demand.



Other vegetables: Civilian consumption of other canned vegetables increased from an average of 41.4 million cases during 1935-39 to 51.0 million cases in 1941. Heavy non-civilian requirements resulted in a civilian supply of 34.6 million cases in 1943.

The estimated 1944-45 demand for the canned vegetables in this group is 61.1 million cases. Canned corn is by far the most important item in this group, accounting for approximately 42 percent of the total demand. The high level of demand expected in 1944-45 for the products in this group results from the inter-play of the same factors which affect the demand for leafy, green, and yellow vegetables.

Related Products: Civilian consumption of canned baby foods, soups, pickles, and baked beans increased from an average total of 54.3 million cases in 1935-39 to 75.1 million cases in 1941. Civilian consumption of canned baby food has continued to increase during the last two years, while the supplies of canned dry beans and pickles available to civilians have decreased because these items have not been regarded as essential war foods.

Civilian demand for canned baby foods in 1944-45 has been estimated at approximately 9 million cases, canned soups at 31.2 million cases, pickles at 15.9 million cases, and canned dry beans at 28.9 million cases, making a total of 85.0 million cases for these four products. The demand for these diverse commodities is affected by one common factor, the desire for larger quantities of prepared easy-to-serve foods. Each of the four has a somewhat elastic price demand, but the high level of consumer income largely offsets any reduction resulting from the currently high retail prices.

#### Problems of Distributing a Short Supply

The large requirements for canned foods by non-civilian claimants during 1944-45 make it improbable that enough canned vegetables and related products can be made available for the duration of the war to satisfy the civilian demand. Thus, rationing these items should be continued and improved.

#### Determination of Requirements

In computing the civilian requirements for canned vegetables and related products for 1944-45, consideration was given to the probable pack, to the large set aside required under War Food Administration Order 22.6, to increased demand under prevailing income conditions, to the dietary significance of respective items, and to the quantity required to make rationing function successfully. Accordingly, the aggregate civilian requirement for canned vegetables has been set at 138.0 million cases (basis 24/2's) as compared with an estimated demand of 194.3 million cases and a consumption of 174.2 million cases from the 1942 pack.

This requirement is equivalent to 31.1 pounds of canned vegetables per capita or to about 70 percent of the estimated demand for this group of

commodities. It would provide about the same quantity per capita as will be consumed by civilians in 1943-44 out of the 1943 pack. To maintain the desired variety and balance, about 11.5 pounds of this requirement should consist of canned leafy, green, and yellow vegetables, 11.7 pounds of tomatoes and tomato products, and 7.9 pounds of other canned vegetables. Expressed in terms of aggregates, the civilian canned vegetable requirement includes 51.0 million cases of leafy, green, and yellow vegetables, 53.0 million cases of tomatoes and tomato products, and 34.0 million cases of other vegetables. (Table 53)

Leafy, Green, and Yellow Vegetables: The 1944-45 requirement of 51 million cases of leafy, green, and yellow vegetables will meet approximately 81 percent of the demand for the canned items in this group. As these vegetables are interchangeable from the standpoint of nutrition and food habits, the requirement for the whole group may be met by supplying these items in any combination provided that a minimum of 25 million cases of peas and 14 million cases of snap beans is allocated to civilians. These two vegetables are important to civilians generally as a source of supply during those periods when fresh vegetables are scarce. They are also important throughout the year to that part of the population which cannot afford fresh green vegetables in sufficient quantity even when they are in season.

Tomatoes: The supply of canned tomatoes that can be made available to civilians during 1944-45 will be considerably less than the demand, due to the high requirements for military and export purposes. Specific requirements have been submitted for 20 million cases of canned whole tomatoes and 15.1 million cases of tomato juice, the two most important items in the group. These quantities will satisfy only about 74 and 62 percent of the respective civilian demand for these two items. These products are a good source of ascorbic acid and have a relatively stable consumption among families in all income classes. Since one of the danger points in the civilian diet is the quantity of ascorbic acid available, it is extremely important that the above requirements for canned tomatoes and tomato juice be supplemented with substantial quantities of home canned products.

The catsup and chili sauce requirement for civilian use has been placed at 7.0 million cases. These products should be kept at a reasonably high level as they are an important means of adding variety to the diet and of increasing the palatability and consumption of some of the more plentiful foods. It is assumed that supplementary supplies will be available from home canning.

No specific requirements are submitted for tomato pulp, purée, paste, and sauce. These may be supplied in any quantity provided that a minimum of 10.9 million cases for the four items is allocated to civilians.

Other Vegetables: The 1944-45 civilian requirement of 34.0 million cases of other canned vegetables will satisfy approximately 56 percent of the

estimated demand for this group. The only item for which a specific requirement is listed is that of canned corn, which is given at 22 million cases. Corn is a particularly desirable vegetable because of the many forms and combinations in which it can be served. Hence, the requirement is placed at 85 percent of the estimated demand to insure its general availability throughout the season when fresh corn is not available. The remaining requirement for 12 million cases of other vegetables may be supplied in any combination as long as due consideration is given to the relative demand for the respective items.

Related Products: Baby food is the only one of these four products for which a specific civilian requirement (9.0 million cases) is submitted. This requirement is aimed at completely satisfying the civilian demand for all types of canned baby food and insuring an adequate supply at a time when births are increasing, more mothers are working, and fresh fruit and vegetables are often expensive or difficult to obtain.

No specific civilian requirements are submitted for canned baked beans, pickles, and soups. Canned baked beans and soups are consumed in large volume and the public would absorb greatly increased quantities even under rationing, if the point values were sufficiently low. Pickles are valuable for variety, but it is not felt that they possess sufficient food value to justify a specific requirement. As in the case of canned baked beans and soups, pickles are in demand as a convenient prepared food and the civilian market would readily absorb any residual supply that might become available during 1944-45.

The recommended quarterly distribution of these canned vegetables is given in table 53. It indicates the rate at which it is recommended supplies should be rationed or made available to ultimate consumers. Movement from processors' hands necessarily would be somewhat in advance of the quarterly distribution shown here.



Table 51 - CANNED VEGETABLES: Civilian PER CAPITA ANNUAL CONSUMPTION for Specified Periods and Estimated DEMAND for 1944-45

Item	Apparent Civilian					Estimated
	Per Capita Consumption 1/					Civilian Demand
	1932	1935-39	1941	1942	1943	1944-45 3/
	1	2	3	4	5	6
-----Pounds Per Capita (processed)-----						
<u>Leafy, Green &amp; Yellow</u>						
Asparagus	.5	.5	.6	.8	.6	.7
Beans, lima	.2	.4	.5	.5	.2	.5
Beans, snap	1.1	2.0	2.3	3.9	3.3	3.8
Carrots	.1	.2	.4	.4	.1	.4
Peas	3.0	4.7	6.5	6.2	5.5	6.7
Pumpkin & Squash	.5	.5	.7	.6	.4	.7
Spinach	.4	.7	.7	1.3	.8	1.1
Other Greens	4/	.1	.1	.1	.3	
Total	5.8	9.1	11.8	13.8	11.2	14.1
<u>Tomatoes</u>						
Whole	5.5	5.9	5.0	6.4	4.2	6.0
Catsup & chili sauce	4/	.9	2.7	2.2	1.2	2.6
Juice	1.2	2.7	4.3	5.0	2.5	5.0
Pulp & Puree	.5	.7	.8	1.5	1.0	1.0
Paste	.1	.5	.64		.7	.9
Sauce	4/	.8		.5	.8	.7
Total	4/	11.5	13.4	15.6	10.4	16.2
<u>Other Vegetables</u>						
Beets	.2	.6	1.2	1.1	1.0	1.2
Corn	3.4	4.2	5.4	5.7	4.7	6.0
Hominy	4/	4/	.6	.1	.1	.6
Mixed Vegetables	4/	.4	.6	.4	.3	.6
Pimientos	.1	.2	.1	.1	.2	.1
Potatoes, White	4/	4/	.1	0	.2	.2
Potatoes, Sweet	4/	4/	.4	0	.4	.4
Sauerkraut 6/	4/	1.7	2.2	1.9	.4	2.2
Succotash	4/	.1	.1	.1	-	.1
Other Vegetables	4/	2.1	.5	.1	.1	2.2
Other Juices	4/	.1	.2	5/	.2	.2
Soybeans	4/	4/	4/	4/	-	.1
Total	4/	9.4	11.4	9.5	7.6	13.9
Grand Total	4/	30.0	36.6	38.9	29.2	44.2
<u>Related Products</u>						
Baby Foods	4/	.4	.9	1.0	1.7	2.0
Soups	4/	4.6	6.8	7.1	5.0	7.2
Pickles	.6	1.9	2.9	2.8	1.9	3.2
Baked Beans	4/	5.5	6.7	2.5	3.2	7.0
Total	4/	12.4	17.3	13.4	11.8	19.4

1/ Based on fiscal year, beginning July 1. 2/ Preliminary. 3/ Estimates furnished by commodity specialists of B.W. 4/ No data available. 5/ Less than .05 pound.. 6/ Includes bulk as well as canned and bottled.

Table 52 - CANNED VEGETABLES: Civilian AGGREGATE ANNUAL CONSUMPTION for Specified Periods and Estimated DEMAND for 1944-45

Item	Apparent Civilian					Estimated
	Aggregate Consumption 1/					Civilian Demand
	1932	1935-39	1941	1942	1943	1944-2/
	1	2	3	4	5	6
-----Million Cases 24 #2's-----						
<u>Leafy, Green &amp; Yellow</u>						
Asparagus	2.0	2.3	3.0	3.6	2.7	3.2
Beans, Lima	.7	1.6	2.2	2.3	.9	2.2
Beans, Snap	4.7	8.6	10.8	17.7	14.9	17.3
Carrots	.4	.9	1.7	2.0	1.6	1.7
Peas	12.4	20.6	28.9	27.0	23.7	29.0
Pumpkin and Squash	1.9	2.1	3.1	2.5	1.6	3.0
Spinach	2.0	4.3	3.6	6.3	3.9	5.3
Other Greens	4/	.3	.7	.5	1.5	1.0
Total	24.1	40.7	54.0	61.9	49.8	62.7
<u>Tomatoes</u>						
Whole	24.3	26.7	23.5	29.1	19.1	27.4
Catsup and Chili						
Sauce	4/	3.7	11.0	8.9	5.0	10.2
Juice	5.6	12.8	21.1	23.8	12.1	24.1
Pulp and Purée	2.3	2.9	3.5	(6.4	4.2	4.4
Paste	.4	1.9)	2.8)	(	2.9	3.8
Sauce	4/	1.9)		2.2	3.6	3.0
Total	4/	49.9	61.9	70.4	46.9	72.7
Beets	1.0	2.7	5.5	4.8	4.5	5.2
Corn	14.1	18.3	24.0	24.7	20.5	26.0
Hominy	4/	4/	2.4	.6	3.6	2.6
Mixed Vegetables	4/	1.9	2.5	1.6	1.2	2.6
Pimientos	.6	.8	.4	.6	.3	.4
Potatoes, White	4/	4/	.4	-	1.0	1.2
Potatoes, Sweet	4/	4/	2.0	-	1.1	1.8
Sauerkraut 6/	4/	7.7	10.2	8.7	1.7	10.0
Succotash	4/	.3	.4	.4	4/	.4
Other Vegetables	4/	9.3	2.4	.4	-	9.5
Other Juices	4/	.4	.8	.1	.7	1.0
Soybeans	4/	4/	4/	4/	-	.4
Total	4/	41.4	51.0	41.9	34.6	61.1
Grand Total	4/	132.0	166.9	174.2	131.3	194.3
<u>Related Products</u>						
Baby Foods	4/	1.9	4.2	4.6	7.4	9.0
Soups	4/	20.0	30.0	31.0	21.4	31.2
Pickles 6/	3.1	9.6	12.9	12.3	7.8	15.9
Baked Beans	4/	22.8	28.0	10.5	12.9	28.9
Total	4/	54.3	75.1	58.4	49.7	85.0

1/ Based on fiscal year, beginning July 1. 2/ Preliminary. 3/ Estimates made by commodity specialists, BAE. 4/ No data available. 5/ Includes succotash. 6/ Includes bulk as well as canned and bottled.

Table 53 - CANNED VEGETABLES: Civilian PER CAPITA and AGGREGATE ANNUAL REQUIREMENTS for 1944-45 1/, Including Percentage Distribution by Quarters.

Item	1944-45 Civilian Requirements					
	Aggregate					
	Per Capita:	Total	July-	Oct.-	Jan.-	April-
	:	:	Sept.:	Dec.:	March:	June
	1	2	3	4	5	6
	Pounds	Mil. Cases	Percentage Distribution			
		<u>2/</u>				
<u>Leafy Green &amp; Yellow</u>						
Asparagus	3/	3/	21	28	30	21
Beans, lima	3/	3/	20	27	28	25
Beans, snap	3.1	14.0	18	26	30	26
Carrots	3/	3/	24	24	27	25
Peas	5.8	25.0	20	27	29	24
Pumpkin & Squash	3/	3/	14	67	14	5
Spinach	3/	3/	20	27	28	25
Other Greens	3/	3/	20	27	28	25
Total	11.5	51.0	--	--	--	--
<u>Tomatoes</u>						
Whole	4.4	20.0	19	26	29	26
Catsup & Chili Sauce	1.8	7.0	24	26	26	24
Juice	3.1	15.1	23	26	27	24
Pulp & Puree	3/	3/	19	26	29	26
Paste	3/	3/	24	25	27	24
Sauce	3/	3/	24	25	27	24
Total	11.7	53.0	--	--	--	--
<u>Other Vegetables</u>						
Beets	3/	3/	19	30	27	24
Corn	5.1	22.0	18	27	29	26
Hominy	3/	3/	18	27	29	26
Mixed Vegetables	3/	3/	20	27	29	24
Pimiento	3/	3/	24	25	27	24
Potatoes, white	3/	3/	20	25	29	26
Potatoes, sweet	3/	3/	19	27	28	26
Sauerkraut	3/	3/	19	28	30	23
Succotash	3/	3/	20	27	29	24
Other Vegetables	3/	3/	20	27	29	24
Other Vegetable Juices	3/	3/	23	26	27	24
Soybeans	3/	3/	18	26	30	26
Total	7.9	34.0	--	--	--	--
Grand Total	31.1	138.0	--	--	--	--
<u>Related Products</u>						
Baby Foods	2.0	9.0	24	27	27	22
Soups	4/	4/	23	29	26	22
Pickles	4/	4/	26	24	24	26
Baked Beans	4/	4/	26	24	24	26
Total	4/	4/	--	--	--	--

1/ Year beginning July 1. 2/ Cases of 24 No. 2's. 3/ No specific requirement provided the requirement for the group is met. 4/ Will accept residual supply.



## Frozen Vegetables

### Consumption and Demand

The civilian consumption of frozen vegetables has doubled during recent years. Consumption increased from an average of 77.7 million pounds (about 0.6 pounds per capita) for the period 1935-39 to approximately 157.9 million pounds (about 1.2 pounds per capita) in 1943-44, Tables 54 and 55. In contrast to canned vegetables it should be noted that the civilian allocation of frozen vegetables for the year 1943-44 will be greater than the civilian consumption for any previous year. However, to maintain the proper perspective it is important to point out that the per capita supplies of frozen vegetables (1.2 pounds) available to civilians in 1943-44 amount to less than 4 percent of those of canned vegetables (31.7 pounds).

Despite the substantially large supply of frozen vegetables available to civilians in 1943-44, it was considered desirable to ration these foods because of the much greater demand than supply. However, points were reduced to zero in April 1944 to facilitate rapid out of storage movement when freezer space for meats and other perishable products became stringent. Freezer space will continue limited during the 1944-45 season and civilians will probably be unable to obtain the supply of frozen vegetables that they would like to purchase. Expansion of refrigeration facilities appears unlikely during this period.

Since price ceilings on frozen vegetables became operative at an earlier date than those for fresh vegetables, prices for these two lines of commodities are more nearly comparable now than formerly. This narrowing of the price differential has contributed to an increased demand for frozen vegetables, particularly by hotels, restaurants, and other institutional users because of the labor saving advantage which frozen vegetables offer. Frozen vegetables are also used increasingly in the manufacture of soups where their use contributes to the maintenance of year round production.

In view of these considerations and the increased purchasing power which many families enjoy, it is estimated that civilians would purchase as much as 338.1 million pounds (2.6 pounds per capita) of frozen vegetables in 1944-45 if they were available.

Leafy, Green, and Yellow: The most important frozen vegetables in this group from the standpoint of volume are green peas, green beans, and lima beans. Also increasing in popularity are frozen spinach, broccoli, Brussel sprouts, and asparagus. Total civilian consumption of these seven items is estimated at about 127.2 million pounds (or 1.0 pounds per capita) in 1943-44. Although civilian demand will be high in 1944-45, limitations of freezer space may make it impossible to provide as large a quantity as civilians received during the past year.

Other Vegetables: Civilian consumption of this group of frozen vegetables in 1943-44 will be about treble that of 1937-39. The most popular item in the group is cut corn. Civilian demand for this group of items in 1944-45 will approximate 72.8 million pounds.

Frozen baked beans also have been packed in considerable volume since the WPB Conservation Order M-61 restricting the use of tin for processed foods became operative. It is estimated that a civilian supply of frozen baked beans in 1944-45 will total 15 million pounds which is also the maximum which civilians are likely to demand in 1944-45.

#### Problems of Distributing a Short Supply

No very serious problem of distribution is likely to result if the supply of frozen vegetables for civilian use should fall short of the demand. Shortage would be felt most acutely by institutional users and by high income families that generally have access to supplies of fresh vegetables.

Rationing of frozen vegetables was fairly effective in achieving an equitable distribution of the supply during the time that it was in operation. Whether rationing controls can again be made operative will depend mainly upon the general cold storage situation and the relative position attached to frozen vegetables should a system of priority for freezer space become operative.

#### Determination of Requirements

An important consideration in determining the civilian requirement for frozen vegetables for 1944-45 is the shortage of freezer storage space and the fact that material expansion of refrigeration facilities for handling frozen foods in wholesale and retail establishments during this period is not feasible.

The aggregate civilian requirement for all frozen vegetables during 1944-45 has been set at 175 million pounds as compared with an estimated peak usage in 1943-44 of 157.9 million pounds and an estimated demand out of the 1944 pack of 338.1 million pounds. Expressed in per capita terms, the requirement amounts to 1.35 pounds.

Since there is considerable opportunity for substitution among the several items, specific requirements are being submitted only for the five most popular items: peas, lima beans, green beans, spinach, and cut corn. These are also the five frozen vegetables for which the War Food Administration plans to operate a price support program during 1944-45.

Leafy, Green, and Yellow: The 1944-45 requirement of 155 million pounds of leafy, green, and yellow vegetables comprises more than 88 percent of the total civilian requirement for frozen vegetables. It includes 60 million pounds of peas, 20 million pounds of lima beans, 19 million pounds of green beans, and 17 million pounds of spinach. No specific requirements are included for frozen asparagus,

broccoli, and Brussel sprouts, and civilians will accept residual supplies of these items provided they total a minimum of 39 million pounds. The overall requirement for frozen leafy, green, and yellow vegetables will provide 1.2 pounds per capita.

Other Vegetables: The 1944-45 civilian requirement for frozen vegetables, other than leafy, green, and yellow, has been set at 20 million pounds. This includes a specific requirement of 12 million pounds of cut corn and a general requirement of 8 million pounds to be supplied from cauliflower, corn-on-the cob, pumpkin, squash, and other minor vegetables. No specific requirement is submitted for frozen baked beans.

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The recommended quarterly distribution of these frozen vegetables is given in Table 56.. It indicates the rate at which it is recommended supplies should be made available to ultimate consumers. Movement from processors' hands necessarily would be somewhat in advance of the quarterly distribution shown here.



Table 54 - FROZEN VEGETABLES: Civilian PLR CAPITA ANNUAL CONSUMPTION  
for Specified Periods and DEMAND for  
1944-45

Item	: Apparent Civilian Consumption 1/				: Estimated
	: 1935-39 2/ : 1941 : 1942 : 1943 3/				: Civilian Demand
	: 1	2	3	4	: 1944-45 4/
-----Pounds Per Capita 5/-----					
<u>Leafy, green &amp; yellow</u>					
Asparagus	.06	.06	.04	.06	.10
Beans, snap	.06	.07	.07	.15	.20
Beans, lima	.13	.14	.19	.09	.10
Broccoli	.02	.03	.04	.07	.10
Brussel sprouts	.004	.01	.02	.07	.04
Peas	.22	.33	.43	.41	1.00
Spinach	.03	.04	.12	.15	.20
Total	.524	.68	.91	1.00	2.04
<u>Other</u>					
Corn, cut	.03	.05	.05	.08	.20
Corn-on-cob	.02	.02	.02	.01	.03
Cauliflower	.004	.01	.01	.04	.03
Other	.02	.04	.07	.11	.30
Total	.074	.12	.15	.24	.56
Grand Total	.60	.80	1.06	1.24	2.60
Frozen baked beans	6/	6/	.05	.12	.12

1/ Pack year basis. 2/ 1937-39 average; data for earlier years not available  
3/ Preliminary estimate. 4/ Estimates furnished by commodity specialists  
of BAE. 5/ Frozen weight. 6/ No data available.

Table 55 - FROZEN VEGETABLES: Civilian AGGREGATE ANNUAL CONSUMPTION  
for Specified Periods and Estimated  
DEMAND for 1944-45

Item	DEMAND FOR 1944-45				
	: Apparent Civilian Consumption 1/ : Estimated				: Civilian Demand
	: 1935-39 2/ : 1941 : 1942 : 1943 3/ : 1944-45 4/				
	1	2	3	4	
-----Million Pounds 5/-----					
<u>Leafy, Green, Yellow</u>					
Asparagus	7.2	7.5	5.2	8.3	13.0
Beans, snap	7.5	8.8	9.0	18.7	26.0
Beans, lima	17.6	19.5	24.6	11.5	52.0
Broccoli	2.4	3.5	5.6	9.3	13.0
Brussel Sprouts	0.5	1.9	3.2	8.8	5.2
Peas	28.7	43.0	55.3	51.7	130.1
Spinach	3.9	4.9	15.0	18.9	26.0
Total	67.8	89.1	117.9	127.2	265.3
<u>Other</u>					
Corn, cut	4.2	6.9	6.0	9.8	26.0
Corn-on-cob	2.5	2.7	2.9	1.5	3.9
Cauliflower	0.5	1.5	1.7	4.8	3.9
Other	2.7	4.9	8.5	14.6	39.0
Total	9.9	16.0	19.1	30.7	72.8
Grand Total	77.7	105.1	137.0	157.9	338.1
Frozen baked beans	6/	6/	7.0	15.0	15.6

1/ Pack year basis.

2/ 1937-39 average; data for earlier years not available.

3/ Preliminary estimate.

4/ Estimates made by commodity specialists, BAE.

5/ Frozen weight.

6/ No data available.

Table 56 - FROZEN VEGETABLES: Civilian PER CAPITA and AGGREGATE ANNUAL REQUIREMENTS for 1944-45, Including, Percentage Distribution by quarters

Item	1944-45 Civilian Requirement 1/					
	Aggregate					
	Per		July-	Oct.-	Jan.-	April-
	Capita	Total	Sept.	Dec.	March	June
	1	2	3	4	5	6
Pounds 2/ Mil.lbs.2/-----Percentage Distribution-----						
Leafy, Green and Yellow:						
Asparagus	3/	3/	15	29	30	26
Beans, green	.15	19.0	18	26	31	25
Beans, lima	.15	20.0	18	25	31	26
Broccoli	3/	3/	18	25	31	26
Brussel Sprouts	3/	3/	10	27	37	26
Peas	.46	60.0	18	28	29	25
Spinach	.13	17.0	18	28	29	25
TOTAL	1.20	155.0	--	--	--	--
Other:						
Cauliflower	3/	3/	10	27	37	26
Corn kernels	.09	12.0	18	25	31	26
Corn-on-cob	3/	3/	18	25	31	26
Pumpkin and Squash	3/	3/	7	71	18	4
Other minor	3/	3/				
vegetables 4/	3/	3/	18	28	29	25
TOTAL	.15	20.0	--	--	--	--
GRAND TOTAL	1.35	175.0	--	--	--	--
Frozen Baked Beans	5/	5/	22	26	27	25

1/ Year Beginning July 1.

2/ Processed weight.

3/ Will accept residual provided total requirement for group is satisfied.

4/ Including such items as leafy greens and mixed vegetables.

5/ Will accept residual supply.



## Dehydrated Vegetables

### Consumption and Demand

Civilian consumption of dehydrated vegetables has been confined principally to three items: carrots, onions, and white potatoes. No satisfactory data are available concerning the production and consumption of dehydrated vegetables prior to 1943. Under the provisions of War Food Administration Order 30.1 issued March 19, 1943, processors of dehydrated beets, cabbage, carrots, onions, white potatoes, sweet potatoes, and rutabagas are required to keep production and disposition records, since substantial quantities of these items are required for military and export purposes. On the basis of these records and the revised 1943-44 allocation of dehydrated vegetables, it is estimated that civilians will consume approximately 0.1 pound per capita during 1943-44 (Table 57). In terms of aggregates, civilian consumption will consist of approximately 3.0 million pounds of dehydrated carrots, 2.1 million pounds of onions, and 5.0 million pounds of white potatoes (Table 57). Incidental quantities of dehydrated sweet potatoes and of a few minor vegetables may also become available for civilian use before the end of the marketing year.

The 1944-45 civilian demand for dehydrated carrots, onions, and white potatoes is estimated at 3.0, 6.0, and 5.0 million pounds, respectively (Table 57). These quantities are used almost entirely upon the production of dry mix and dehydrated soups since this is the principal form in which most dehydrated vegetables are utilized by civilians. Dehydrated onions however are used also in the manufacture of tomato catsup, chili sauce, and other processed foods. Limited quantities of onion flakes have also been distributed through retail channels.

### Problems of Distributing a Short Supply

In 1943 the production of the seven most important dehydrated vegetables: beets, cabbage, carrots, onions, rutabagas, sweet potatoes, and white potatoes was reserved exclusively for Government purchase to meet military and Lend-Lease requirements under what is now War Food Administration Order 30. Later in 1943 dehydrated carrots, sweet potatoes and white potatoes were released from the order because of higher production and lower requirements than had been anticipated. Beets, cabbage, and rutabagas were also removed from the order in the spring of 1944, leaving only dehydrated onions subject to reservation.

In the case of dehydrated onions, limited quantities have been released to civilians to be used primarily in the manufacture of dry mix and dehydrated soups. A small quantity also has been released to the manufacturers of processed tomato products who lack the facilities for

utilizing dry onions. Releases of dehydrated onions have been made under an allocation system and it is expected that the same method will be followed in 1944-45. This is necessary to insure that the limited quantities for civilian users are utilized only by those entitled to them either as manufacturers of dry mix soups or as processors of other essential products.

#### Determination of Requirements

Since the use of dehydrated vegetables by U. S. civilians is confined almost wholly to the quantity required for soups, specific requirements are being submitted for the three major items only: onions, carrots, and white potatoes. Civilians will receive, in addition, the residual supply of beets, cabbage, celery, rutabagas, sweet potatoes and other dehydrated vegetables (Table 58). Of the commodities listed above, dehydrated sweet potatoes will probably have the greatest demand.

The civilian requirements for carrots and white potatoes are given at 3.0 million pounds and 5.0 million pounds, respectively -- the maximum quantities that the dry mix soup industry is likely to utilize during 1944-45.

In view of the limited supply of dehydrated onions, the civilian requirement for this item is placed at 4.0 million pounds, or at only two-thirds of the estimated 1944-45 demand. It should be noted that dehydrated onions are utilized in the manufacture of catsup, chili sauce, and other tomato products which are purchased by the military services and other non-civilian claimants. The supply of dehydrated onions so utilized is included in the civilian allocation.

A substantial part of the civilian requirement for dehydrated carrots, onions, and white potatoes may consist of satisfactory supplies that do not fully meet Government purchase specifications since these products are to be used indirectly in the production of soups and other processed foods.

Table 58 indicates the recommended distribution of these commodities by quarters. Allowance is made for limited production and consumption of dry mix soups during the summer months when distribution is normally reduced, owing to the greater difficulty of handling these products during hot weather. In the case of sweet potatoes, the recommended quarterly distribution provides for a minimum use during the October-December quarter when fresh potatoes are in heaviest quantities and for a larger use during the period from January through June when the supply of cured sweet potatoes is less plentiful.

Table 57 - DEHYDRATED VEGETABLES: Civilian PER CAPITA and AGGREGATE ANNUAL CONSUMPTION for Specified Periods, and Estimated Civilian DEMAND for 1944-45 1/

Item	Per Capita		Aggregate	
	: Apparent	: Estimated	: Apparent	: Estimated
	: Civilian	: Civilian	: Civilian	: Civilian
	: Consumption:	: Demand	: Consumption:	: Demand
	: 1943 <u>2/</u>	: 1944-45 <u>3/</u>	: 1943 <u>2/</u>	: 1944-45 <u>3/</u>
	: 1	: 2	: 3	: 4
	----- (Pounds) <u>4/</u> -----		----- (Millions of Pounds) <u>4/</u> -----	
Carrots	.02	.02	3.0	3.0
Onions	.02	.05	2.1	6.0
White Potatoes	.04	.04	5.0	5.0
Other Vegetables	<u>5/</u>	<u>5/</u>	<u>5/</u>	<u>5/</u>

1/ Year beginning July 1.

2/ Preliminary estimate; data for previous years incomplete.

3/ Estimates furnished by commodity specialists of BAE.

4/ Processed weight.

5/ Quantity indeterminate; based largely on volume of offgrade production.



Table 58 - DEHYDRATED VEGETABLES: Civilian PER CAPITA and AGGREGATE REQUIREMENTS for 1944-45, Including Percentage Distribution by Quarters 1/

Item	1944-45 Civilian Requirements <u>2/</u>					
	Aggregate					
	Per Capita	Total	July-Sept.	Oct.-Dec.	Jan.-March	April-June
	1	2	3	4	5	6
	Pounds <u>3/</u>	Mil. <u>3/</u>	Percentage Distribution			
Carrots	.02	3.0	20	30	30	20
Onions	.03	4.0	40	25	20	15
White Potatoes	.04	5.0	16	30	30	24
Sweet Potatoes	<u>4/</u>	<u>4/</u>	16	8	28	48
Other Vegetables <u>5/</u>	<u>4/</u>	<u>4/</u>	20	30	30	20

1/ Year beginning July 1.

2/ A portion of this requirement may be supplied from stocks that do not fully meet government specifications which are satisfactory for indirect use in dry-mix soups.

3/ Dehydrated weight.

4/ No specific requirement; will accept residual.

5/ Including such items as beets, cabbage, celery, garlic, greens, tomato flakes, and rutabagas.

## WHITE AND SWEET POTATOES

(Prepared by Oscar R. LeBeau and Wm. R. Whitacre)

### Summary.

Potatoes, one of the most important staples in the American diet, make an important contribution to its nutritional adequacy. White potatoes provide substantial quantities of Vitamin C and, since they are so universally liked, they are well adapted to filling in shortages that may occur in other staple foods. Sweet potatoes are a good source of Vitamins A and C. Sweet potatoes are consumed largely in the South where to some extent they replace white potatoes. The long time trend in the consumption of white potatoes has been downward, but shortage of many important foods during the war period has led to an increased demand for both white and sweet potatoes. It is expected that demand will increase in 1944-45. Rationing of potatoes does not appear to be technically feasible owing to the impossibility of controlling the many scattered sources of supply. Moreover, even if it were possible, rationing would be undesirable since potatoes represent a low-cost, nutritious food which should be freely available to fill in shortages of other vegetables. In view of these considerations, the per capita civilian requirement for white and sweet potatoes during the year 1944-45 has been set at 140 and 26 pounds (farm weight basis), respectively, or enough to meet the estimated demand. This per capita requirement is equivalent to 303.5 million bushels of white potatoes and 61.5 million bushels of sweet potatoes in the aggregate.

### Dietary Significance.

White Potatoes. White potatoes make an important contribution to the adequacy of the civilian diet. They provided approximately twelve percent of the ascorbic acid (Vitamin C) in the civilian food supply during 1943. Only two food groups furnish more -- tomatoes and citrus fruits, and leafy, green and yellow vegetables -- which are relatively expensive and consumed to a greater extent by high-income families. The contribution to the total supply of ascorbic acid made by potatoes, therefore is even more significant in the diets of low-income families than others since they eat more potatoes and less of other vitamin-C-rich foods. White potatoes are also a cheap and fairly good source of iron, thiamine, and niacin. As a palatable food, they provide means of obtaining sufficient calories. This is another reason why they are well adapted to filling in shortages which may occur in other vegetables.

White potatoes are universally popular and to many people are an indispensable part of at least two meals per day. They grow well in many parts of the country and because of their keeping qualities, can be easily stored in the home for fairly long periods. Potatoes provide much of the bulk in low income diets and as such are useful as meat extenders. Palatability, low cost and general availability make potatoes one of the most important items in the diet of a large proportion of the population.

Sweet Potatoes. Sweet potatoes are cultivated in more limited areas, but have in general the same merits as white potatoes, and in addition are an excellent source of vitamin A. Since they are also a very good source of vitamin C, they make almost the same contribution to the diet as the leafy, green vegetables.

Consumption and Demand.

Historically, the trend in per capita consumption of white potatoes has been downward as the consumption of other vegetables has increased. In the last year, however, with the rationing of canned vegetables and the high prices of many fresh vegetables, as well as the shortages of other foods, this historical trend has been reversed. The consumption of sweet potatoes, which are relatively less important in terms of volume, has fluctuated between 16 and 29 pounds per capita, farm weight basis, during recent years. Figures for historical consumption of white and sweet potatoes are given in Tables 59 and 60.

Table 59 - WHITE POTATOES AND SWEET POTATOES: Civilian PLR C.PIT.  
ANNUAL CONSUMPTION for Specified Periods, and Estimated  
Civilian DEMAND for 1944-45 1/

Item	: Apparent Civilian Consumption 2/					: Estimated
	: 1932	: 1935-39	: 1941	: 1942	: 1943 3/	: Civilian Demand
	: 1	2	3	4	5	: 1944-45 4/
	: -----Pounds Per Capita-----					
White Potatoes	142.7	131.3	124.4	120.3	141.6	140.0
Sweet Potatoes	29.0	23.4	20.7	22.3	23.3	26.0
Total	171.7	154.7	145.1	142.6	164.9	166.0

1/ Fiscal year basis.

2/ Farm weight basis. Excludes quantities wasted on farms and sold for starch and seed.

3/ Preliminary.

4/ Estimates furnished by commodity specialists of B.E.



Table 60 - WHITE POTATOES AND SWEET POTATOES: Civilian AGGREGATE ANNUAL CONSUMPTION for Specified Periods, and Estimated Civilian Demand for 1944-45 1/

Item	Apparent Civilian Consumption 2/					Estimated
	1932	1935-39	1941	1942	1943 3/	Civilian Demand
	1	2	3	4	5	1944-45 4/
-----Millions of Bushels-----						
White Potatoes	297.8	283.3	273.6	260.2	304.2	303.5
Sweet Potatoes	65.9	55.1	49.6	52.4	54.2	61.5
Total	363.7	338.4	323.2	312.6	358.4	365.0

1/ Year beginning July 1.

2/ Farm weight basis. Excludes quantities wasted on farms and sold for starch and seed.

3/ Preliminary.

4/ Estimates furnished by commodity specialists of BAE.

Demand for white and sweet potatoes during 1944-45 has been estimated at 140 and 26 pounds per capita (farm weight basis), respectively. Demand for potatoes fluctuates little with variations in price, and this tendency has been strengthened due to the general reduction in civilian food supplies and the high prices of fresh vegetables. In view of these factors, demand estimates are hazardous. At present the demand for potatoes is largely a residual one, and shortages in other foods will be reflected in increased demand for potatoes. Therefore, in so far as we are unable to predict precisely the degree to which the demand for other vegetables will be supplied, it is essential to have a small margin of safety in potatoes. This is merely a premium on an insurance policy against hunger, and the possibility of a small amount of waste could be amply justified in order to assure adequate supplies of this cheap, nutritious food throughout the year.

#### Problems of Distributing a Short Supply.

A shortage of potatoes would raise serious distribution problems. Potatoes cannot be effectively rationed as it is impossible to control the sources of supply. White potatoes are produced in every state, and sweet potatoes in every Southern state. Nevertheless, even if it were technically feasible to ration potatoes, it would be undesirable, in light of the fact that they represent a cheap, nutritious food which should be freely available, to fill in shortages of vegetables or other staple foods.

# Determination of Requirements.

Owing to the significance of potatoes in the diet, as well as the difficulties of distributing a short supply, the quantity of potatoes, both white and sweet, allocated for civilians must be sufficient to meet demand. It is only by this method that we can satisfactorily achieve the necessary distribution of the potato supply among civilians in this country. The requirement for white potatoes for 1944-45 is 140 pounds per capita (farm weight basis) and the requirement for sweet potatoes is 26 pounds per capita (farm weight basis). This represents an aggregate civilian requirement for 303.5 million bushels of white potatoes and 61.5 million bushels of sweet potatoes. These quantities exclude amounts wasted on farms and those sold for starch and seed; thus, they represent net food use.

The quarterly distribution for white potatoes shown in Table 61 provides for the bulk of the increase in consumption over earlier years to come in the October-December and January-March quarter. The bulk of any increase should be in the late crop of white potatoes rather than the early and immediate crops, because the late crop can be stored while the two earlier crops are perishable and must be handled rapidly. Moreover, the demand for potatoes is lower in the summer months when supplies of fresh vegetables are more abundant. The quarterly requirement for sweet potatoes follows the normal seasonal pattern of use, the increase over recent years being distributed proportionately among the quarters.

Table 61 - WHITE POTATOES AND SWEET POTATOES: Civilian PER CAPITA and AGGREGATE REQUIREMENTS for 1944-45, Including Quarterly Distribution

Item	1944-45 Requirements 1/					
	Aggregate					
	Per	July-	Oct.-	Jan.-	Apr.-	
	Capita:	Total:	Sept.	Dec.	March	June
	1	2	3	4	5	6
	Pounds	Million Bushels 2/				
White Potatoes	140.0	303.5	60.7	91.0	91.1	60.7
Sweet Potatoes	26.0	61.5	15.4	22.8	17.2	6.1
Total	166.0	365.0	76.1	113.8	108.3	66.8

1/ Year beginning July 1.

2/ Farm weight basis, excludes quantities wasted on farms and sold for starch and seed.

## DRY BEANS AND PEAS

(Prepared by Isabelle M. Kelley)

### Summary

Dry beans and peas make significant contributions to the adequacy of the civilian diet as these foods are eaten in relatively large quantities by the lower income groups whose diets are generally deficient in the nutrients available in dry beans and peas. In addition, they provide a source of protein to those groups who find themselves in areas where distribution of meat is spotty and irregular. Because of substantial variations in consumption among various groups, unrestricted distribution would result in the most efficient use of these foods. Thus, the requirement for peas is placed at the demand level and the requirement for beans is placed at a level which will allow rationed distribution at a low point value.

### Significance to the Food Supply

Nutritionally, dry beans and peas can be considered as partial substitutes for meats. The proteins supplied are not as efficient as animal protein. However, they furnish certain essential substances not available in cereal proteins and the combination of the two in a low-cost diet is a significant improvement over a diet with cereal proteins only. Thus, these foods make significant contributions to the adequacy of the civilian diet by improving the diets of those groups having low food expenditures, who are least likely of having an adequate diet, largely because of the relatively low consumption of animal protein.

These foods contain considerable amounts of iron, thiamine and riboflavin. Their riboflavin is important because it is often a limiting factor in the diet. Inasmuch as dry beans and peas are efficient users of resources and their production can be more readily increased than any other protein food, it has been our position to encourage consumption of this source of protein among the civilian population.

Dry beans are important in the diets of certain groups, such as the Mexicans in the Southwest, and among such groups annual per capita consumption is several times the national average. Quite outside of nutritional considerations, this food is an essential part of their dietary pattern and they must continue to be able to purchase large quantities if serious repercussions on morale are to be avoided.

### Consumption and Demand

Per capita supplies of dry beans rose from 7.4 pounds from the 1932 crop to an average of 8.8 pounds from the crops of the period 1935-39. Civilian consumption of the 1941 and 1942 crop was less than 9.0



pounds per capita. However, this decline in consumption reflects the decline in supplies available for civilian distribution due to military and Lend-Lease needs. Demand for dry beans has exceeded available supplies during these years and in March 1943 it was necessary to place the supply of dry beans under rationing restrictions in order to achieve a reasonably equitable distribution of the available supply. Despite rationing restrictions, civilians will consume 9.3 pounds per capita from the 1943 crop (table 62).

Table 62. DRY BEANS and PEAS: Civilian PER CAPITA and AGGREGATE ANNUAL CONSUMPTION for Specified Periods and Estimated DEMAND for 1944-45

Item	Apparent Civilian Consumption						Estimated
							Civilian
							Demand
	1932	1935-39	1941	1942	1943	1944-45	
	1	2	3	4	5	6	
----- Per Capita (Pounds) 1/ -----							
Dry beans	7.4	8.8	8.7	3.6	9.3	3/	10.8
Dry peas	2/	0.5	0.4	1.2	1.2	3/	1.2
----- Aggregate (Thousand Bags) 1/ -----							
Dry beans	9,358	11,505	11,535	11,176	12,037	3/	14,000
Dry peas	2/	653	577	1,600	1,500	3/	1,500

1/ Cleaned basis.

2/ Not available.

3/ Preliminary.

It is estimated that the demand for dry beans for the period beginning July 1, 1944 will be higher than currently and will total 14 million bags, cleaned basis, (table 62). Larger than anticipated supplies of meat currently available have eased the demand for dry beans. However, by October supplies of meat will be considerably reduced and this will be reflected immediately in a larger demand for dry beans.

Consumption of dry peas was comparatively stable at approximately 0.5 pound per capita from the crops of the years 1935 through 1939; and slightly smaller amounts from the 1940 and 1941 crops. However, the restricted supply of meat resulted in a higher demand for dry peas and civilians will consume dry peas available from the 1943 crop at more than double the pre-war annual rate (table 62). It is estimated that civilians are now consuming dry peas at close to the maximum rate possible and demand in the year beginning July 1, 1944 will continue at the rate of 1.5 million bags, cleaned basis (table 62).

## Problems of Distributing a Short Supply

It is desirable to supply dry beans and dry peas to civilians at a rate that would permit unlimited consumption. Because of wide differences in annual consumption rates as among racial groups and income groups and of the importance of these foods to those groups consuming relatively large quantities, the most satisfactory distribution of these legumes would occur if adequate supplies were available and these groups were not limited in their consumption. In addition, plentiful supplies of dry beans and peas can fill gaps in the diets created by shortages of animal protein in areas where distribution of meat and poultry is spotty and irregular.

## Determination of Requirements

Despite the desirability of a supply of dry beans for civilians that would allow the removal of rationing to (1) hedge against the anticipated reduction in meat supplies and (2) achieve the most efficient distribution, the Branch has recognized that the needs for relief feeding will place a heavy drain upon our total supply. Therefore, we are placing our requirement at 13,000,000 bags, a million bags below estimated demand. An allocation equal to this quantity is necessary to allow a heavy movement of beans from producing areas in September so that retail supplies may be at adequate levels when consumer demand increases due to reduced meat supplies in the last quarter of the year. This requirement will not permit the removal of beans from rationing restrictions but it will allow the continuance of a relatively low point value, permitting the majority of the special needs to be met. The requirement for dry peas is placed at 1.5 million bags, the estimated level of the demand, in order to guarantee the continuance of unrestricted distribution and is equal to the civilian allocation for the calendar year 1944.

The requirements by quarters are shown in Table 63. These requirements represent movement of beans and peas out of producing areas and do not correspond to the quarterly pattern of actual consumption.

Table 63. DRY BEANS and DRY PEAS: Civilian PER CAPITA and AGGREGATE ANNUAL REQUIREMENTS for 1944-45, By Quarters.

Item	1944-45 Civilian Requirement					
	Aggregate					
	Per		July-	Oct.-	January-	April-
	Capita	Total	Sept.	Dec.	March	June
	1	2	3	4	5	6
	Pounds					
Dry beans	10.0	13,000	1,320	5,720	3,640	1,320
Dry peas	1.2	1,500	300	525	450	225

## NUTS

(Prepared by Isabelle M. Kelley)

### Summary

Peanuts make important contributions to the adequacy of the civilian diet because they provide significant quantities of efficient protein, and, in the form of peanut butter, add to the supply of breadspreads. Tree nuts are a good source of minerals and thiamine for those families to whom high cost is not a consideration. In view of the difficulty of insuring equitable distribution of a short supply of peanuts among the various edible users and the need to meet unrestricted civilian demand for peanut butter, the civilian requirement for peanuts for edible use is placed at the estimated demand level. The requirement for tree nuts is placed at a level that will meet a substantial proportion of the demand and insure reasonably equitable distribution.

### Significance to the Food Supply

Peanuts and peanut butter contain significant quantities of protein that is biologically efficient, being comparable in quality with the chief animal proteins. Peanuts are one of our richest sources of niacin and they also provide substantial quantities of thiamine and fair amounts of riboflavin. Riboflavin and niacin are likely to be inadequate in the average diet and, hence, the addition of peanuts in the diet could raise the margin of safety for these nutrients. Peanut butter is particularly important as it provides a nutritious spread for bread at a time when butter supplies are substantially below normal levels; and it is the one peanut product which appears to be eaten in relatively large quantities by consumers least likely to have an adequate diet (lower income groups).

The high fat and protein content of nuts ranks them as valuable caloric foods. Tree nuts are also good sources of minerals and thiamine. Where price is not important, tree nuts can be a good source of some nutrients and provide variety to the diet.

### Consumption and Demand

Consumption of peanuts has displayed a substantial upward trend. Consumption totalled 5.9 pounds per capita (farmer's stock basis) from the 1932 crop, averaged 6.4 pounds per capita from the crops of 1935 through 1939, and rose sharply to 8.8 pounds from the 1942 crop. From the 1943 crop it is estimated that 9.5 pounds per capita will be available for civilian distribution (table 64).



Table 64.--NUTS: Civilian PER CAPITA and AGGREGATE ANNUAL CONSUMPTION for Specified Periods, and Estimated DEMAND for 1944-45

Item	Apparent Civilian Consumption					Estimated
	1932	1935-39	1941	1942	1943	civilian
	1932	1935-39	1941	1942	1943	demand
	1	2	3	4	5	1944-45
-----Per Capita (pounds)-----						
Peanuts <u>1/</u>	5.9	6.4	6.6	8.8	9.5	10.0
Tree nuts <u>2/</u>	.95	.95	1.06	.89	.96	1.20
-----Aggregate (million pounds)-----						
Peanuts <u>1/</u>	743.6	833.0	882.5	1,150.0	1,232.7	1,301.0
Tree nuts <u>2/</u>	119.6	124.3	141.4	116.6	124.5	156.0

- 1/ Farmer's stock basis. Estimates refer to crop year beginning in October of year shown.
- 2/ Shelled basis. Estimates refer to fiscal year beginning in year shown.

The sharp increase in the use of peanuts from the 1942 and 1943 crop reflect the substantial increase in the production and consumption of peanut butter, and increased use of peanuts in candy and as salted nuts which, in part, is due to peak consumer demand for these products; and, in part, to a substitution of peanuts in these products for other nuts in short supply.

It is estimated that the demand for peanuts in an unrestricted market would total as much as 10.0 pounds per capita for the year beginning July 1, 1944 (table 64). This is based on the effective demand for peanuts by the edible users, such as peanut butter manufacturers, confectioners, and salters, rather than the civilian demand for the end products reduced to a peanut-equivalent basis. It appears that the limitations imposed by shortages of labor, containers, and other ingredients will limit the production of most products containing peanuts to a point below the level of unrestricted consumer demand. This situation is especially significant in confections and salted nuts.

In addition, a substantial part of the increased production of peanuts has been of the Runner variety, a peanut not suited for use by salters, and considered less desirable by many peanut butter and candy makers. While many segments of the edible trade could use more peanuts, they prefer the Virginia and Spanish type and will be reluctant to use Runners. It is estimated that the edible trade will not absorb more than 1,301 million pounds of peanuts (farmer's stock basis) for civilian use unless Virginias made up a larger proportion of the total than they have heretofore.

The apparent per capita consumption of tree nuts appears to have been relatively stable at approximately 1.0 pound (shelled basis). Consumption declined during the fiscal year 1943 but this reflected the reduction in the supplies of imported nuts rather than a declining demand (Table 64). It is estimated that civilian demand for tree nuts will be at a level somewhat higher than pre-war consumption since the demand for nuts is quite responsive to the level of consumer income. However, it appears that the high prices of tree nuts, together with reduced demand on the part of industrial users, such as bakers, who have eliminated some uses of nuts in order to reduce man-hours of labor required per unit of production, in part have counterbalanced the effect of increased consumer incomes. Aggregate civilian demand is estimated at 156 million pounds (Table 64).

#### Problems of Distributing a Short Supply

It does not appear possible to achieve a reasonably satisfactory distribution of peanuts among the various edible users of peanuts if the supply available is substantially below the quantity necessary to meet unrestricted demand. During the current season distribution of peanuts among edible users has been spotty and irregular, with some users unable to buy the quantities and type of peanuts desired while other users were adequately supplied. Controlling the distribution of a short supply of peanuts is complicated by the variety of uses to which the peanuts are put and the substantial variation in the increased use of peanuts in recent years among individual concerns producing the same product. In 1943 an attempt was made to control the distribution of peanuts to edible users in order to insure increased production of peanut butter. Peanut butter manufacturers were allowed a quota based on 1942 use which was equal to the expected increase in the need for peanut butter. The application of the same percentage increase over the base period in permitted use of peanuts resulted in some concerns having peanuts in excess of their capacity to process or ability to sell, while other concerns who had been able to sell greatly increased quantities of their products were forced to cut back their production. This disadvantage is inherent in many orders controlling distribution. However, the production increases among individual peanut butter manufacturers were subject to such substantial variations that the assignment of quotas to butter manufacturers allowing the same percentage increase was particularly disruptive.

It appears that there is no serious problem involved in distributing a supply of tree nuts inadequate to meet all demands. Tree nuts are consumed primarily by the higher income groups and the effects of a short supply would not be significant in the overall adequacy of the civilian food supply.

#### Determination of Requirements

Since peanuts are a good source of protein and in the form of peanut butter can help maintain adequate supplies of breadspreads for civilians, it is highly desirable that peanuts for civilian use be available in an amount that will result in a reasonably equitable distribution. In view of the practical difficulties involved in controlling distribution, the civilian requirement is placed at 1,301 million pounds, farmer's stock basis, the quantity necessary to satisfy all demands of edible users (Table 65).

Table 65. NUTS: Civilian PER CAPITA and AGGREGATE ANNUAL REQUIREMENTS for 1944-45, By Quarters

Item	1944-45 Civilian Requirement						
	Aggregate						
	Per	Total	July-	Oct.-	January-	April-	
	Capita		Sept.	Dec.	March	June	
	1	2	3	4	5	6	
	Pounds			Million Pounds			
Peanuts, farmer's stock	10.0	1,301.0	286.2	442.4	312.2	260.2	
Tree nuts, shelled	1.08	140.0	<u>1/</u>	<u>1/</u>	<u>1/</u>	<u>1/</u>	

1/ No allocation by quarters.

The requirement by quarters is based largely upon the pattern of movement of cleaned and shelled peanuts from mills to edible users in 1942. The large peanut crops in recent years have accentuated the movement of peanuts in the October-December period, as peanuts mills in the South-east do not have storage capacity for keeping peanuts on hand after harvest. This quarterly requirement does not correspond to the seasonal pattern of consumption.

The civilian requirement for tree nuts totals 140 million pounds, shelled basis (Table 65). This is almost 20 million pounds below the amount needed to meet unrestricted civilian demand but should provide for a reasonably equitable distribution of the supply available for civilian use.



## DRY-MIX AND DEHYDRATED SOUPS

(Prepared by Oscar R. LeBeau and Wm. R. Whitacre)

### Summary.

Dry-mix and dehydrated soups are bought primarily as convenience foods. By embodying certain important nutrients, however, these soups become a significant means of distributing these nutrients widely in convenient, palatable and economical form. Civilian consumption of dry soups has been increasing rapidly and in 1943-44 will probably reach about 100 million pounds. Owing to shortages of other foods, including canned soups which are now under rationing, the demand for dry soups is expected to rise. The War Food Administration has encouraged expansion of production to provide an effective outlet for dry peas and soybeans. Production for civilian use is expected to reach 150 million pounds, and civilian requirements for 1944-45 have been fixed at this figure.

### Significance of Dry-Mix and Dehydrated Soups to the Food Supply.

Dry-mix and dehydrated soups are predominately a convenience food for the housewife who lacks time to prepare such foods at home. The nutritional significance of these soups is largely the same as that of the chief constituents -- cereals, legumes, and vegetables. Dry soups may serve as a palatable form in which to consume larger quantities of legumes, cereals, and vegetables than would otherwise be the case. For instance, a higher consumption of soybeans through incorporation in soups would improve the diet in several respects. Since our diet in 1944-45 will contain more of these economically-produced foods, not only is it well to have a palatable carrier to insure adequate consumption, but also addition of these foods in another form assures variety.

### Consumption and Demand.

The first year for which data on civilian consumption of dehydrated and dry soups are available is 1942-43. These figures are so fragmentary that they represent only a rough estimate of civilian consumption for this commodity group - about 50 million pounds. Production for civilian use in 1943-44 will probably be double that amount or about 100 million pounds. This estimate is based on the requests for strategic materials received by the Grain Products Branch from the dry soup industry, and is highly preliminary. Of this total about 80 million will consist of dry-mix soups predominating in cereals, chiefly chicken noodle soup; 9 million of dry-mix soups predominating in legumes; 8 million of dry-mix soups predominating in vegetables; 2 million of the dehydrated soup group, and 1 million pounds of miscellaneous dry types. The total represents an average annual supply of about 12 ounces per person. (Table 66)

Table 66 - DRY MIX AND DEHYDRATED SOUPS: Civilian PER CAPITA and AGGREGATE ANNUAL CONSUMPTION for 1943-44, and Estimated Civilian DEMAND for 1944-45 1/

Item	Per Capita		Aggregate	
	: Apparent	: Estimated	: Apparent	: Estimated
	: Civilian	: Civilian	: Aggregate	: Civilian
	: Consumption	: Demand	: Civilian	: Demand
	: 1943-44 <u>2/</u>	: 1944-45	: Consumption 1943-44 <u>2/</u>	: 1944-45
	1	2	3	4
	----- (Pounds) <u>3/</u> -----		----- (Millions of Pounds) <u>3/</u> -----	
Dry-Mix Soups				
(a) predominating in cereals <u>4/</u>	.62	.78	80.0	100.0
(b) predominating in legumes <u>5/</u>	.07	.19	9.0	25.0
(c) predominating in vegetables	.06	.12	8.0	16.0
Dehydrated Soup <u>6/</u>	.02	.03	2.0	4.0
All Other (mushroom, dried stew, etc.)	.01	.04	1.0	5.0
Total	.78	1.16	100.0	150.0

- 1/ Processed weight; 1944-45 demand is for the year beginning July 1.  
 2/ Preliminary estimate; data for previous years incomplete.  
 3/ Processed weight.  
 4/ Principally chicken noodle soup.  
 5/ Principally beans, peas, and soybeans.  
 6/ Condensed from fresh vegetables and other types of soups.

Demand for these soups in the fiscal year beginning July 1944 would normally be in excess of any previous year, but still further expansion of demand is being stimulated in order to fortify consumers' diets with the nutritious and abundant commodities used in the important types of dry soups. Hence, the goal for production of dry and dehydrated soups for civilian distribution in 1944-45 has been established at 150 million pounds, 50 percent more than was produced for civilians during 1943-44 and amounting to approximately 1.2 pounds per capita. For the purposes of considering civilian requirements for 1944-45, several types of dry soups have been indicated.

Dry-Mix Types: The most important of dry soups from both the quantitative and the nutritional point of view are the dry-mix types, which fall into three subdivisions according to the commodities predominately used in their manufacture. (Table 66)

The group of dry-mix soups predominating in cereals consists largely of chicken noodle soup, although it also includes some beef noodle and other kinds of noodle combinations. While about 80 percent of the 1943-44 dry soup production for civilians is estimated to be of the cereal mix type, the demand for this type in 1944-45 cannot be expected to increase in proportion to the proposed expansion in the production and distribution of all dry soups. It is estimated that the demand for the cereal type will approach 100 million pounds in 1944-45, or about two-thirds of the proposed production of all dry-mix and dehydrated soups for civilians.

The group predominating in legumes is composed largely of soups manufactured from dry peas or beans, some with a soybean base. From the nutritional point of view, this is the most significant of all types of dry and dehydrated soups; it also offers one of the best opportunities for increasing consumption of soybeans which are relatively abundant. It is almost certain that the demand for dry peas for direct consumption in the home will be less than the available supplies. Hence, it will be considered most feasible and efficient to divert some of the supply to industrial uses, of which dry-mix soups is one of the largest. It is believed that civilian demand for this type of dry-mix soup can be increased to approximately 25 million pounds during 1944-45.

The group of dry mix soups predominating in vegetables is ordinarily made from a mixture of dehydrated vegetables, with or without a soybean base. Dehydrated carrots, one of the dehydrated vegetables available in largest quantities form the base of most of the vegetable mix soups. Other important ingredients include the minor dehydrated vegetables and dehydrated white potatoes. All these vegetables should be available in sufficient quantities to permit an increase in civilian consumption of vegetable-mix soups to 16 million pounds for 1944-45, as compared with about 8 million in the preceding year. Dehydrated onions, as essential ingredient in virtually all dry soups, are a special problem which must be considered separately.

Dehydrated Soups: The second group of dry soups for civilian use is the type made from fresh vegetables and other products which are combined into a liquid soup and then dehydrated as a mixture. Only limited quantities of this type have been produced up to this time, and it is estimated that 1943-44 production will not exceed 2 million pounds. Experiments are now being conducted which, if successful, may lead to an expanded use of this type of dehydrated soup in the feeding of infants and invalids to supplement rationed processed foods. With this in mind, a tentative goal of 4 million pounds has been set for 1944-45 civilian consumption.

Miscellaneous Dry-Mix Soups: The third and last group of dry soups is made up of a number of miscellaneous types such as dried mushroom soup, dried stew and similar combinations. Consumption of these soups in



1943-44 totaled only about 1.0 million pounds. Inasmuch as these miscellaneous dry soups can be manufactured from a group of products which are relatively unimportant in the war food picture, such as dried mushrooms, certain of the minor dehydrated vegetables, and the like, the 1944-45 civilian requirement is being set at 5 million pounds.

For the entire group of dry-mix and dehydrated soups, it is assumed that civilian demand can be expanded over 1943-44 consumption levels. In particular, the sharp difference between the price of dried soups and that of canned soups -- the former costs about one-third as much as the latter per serving -- should induce greater consumption of the dry types, providing consumers are properly acquainted with their availability, their use as a substitute for rationed canned soups, and their nutritional value.

#### Problems of Distributing a Short Supply.

Dry soups, as a group, should be available in abundance and consumption should be encouraged by all means at hand. Expanded production to the extent recommended should assure adequate supplies in all markets.

#### Determination of Requirements.

In the case of each type of dry soup, the requirements for civilians during the fiscal year beginning July 1944, have been set at the point of maximum demand. The requirement for the whole group is 150 million pounds, broken down as follows: dry-mix soups predominating in cereals, 100 million pounds; those predominating in legumes, 25 million; those predominating in dehydrated vegetables, 16 million; dehydrated soups made from fresh vegetables and other fresh ingredients, 4 million pounds; miscellaneous dry soups, 5 million pounds.

For the dry-mix and dehydrated soup industry as a whole there appear to be ample facilities for producing the quantities of soup established as the 1944-45 goal. Should substantial quantities of dry-mix soups produced for non-civilian claimants be released upon the civilian market, it is expected that serious distribution problems might arise unless vigorous efforts were made to stimulate increased consumption.

With respect to the production of dry-mix soups, a somewhat serious problem is raised by the limited supply of dehydrated onions, which are used as an essential flavoring ingredient in virtually all types of dry-mix soups. However, the 1944-45 goal for this commodity group may be reached by adjusting formulas to reduce the required percentages of dehydrated onions and by substituting other flavoring ingredients for onions. Nevertheless, increased supplies of dehydrated onions for dry soups will be required. The use of dehydrated onions in the manufacture of dry soups is considered highly essential as it will contribute in large measure to a greatly expanded consumption of such nutritious high-protein foods as soybeans, dry peas, and dry beans.

The quarterly allocations of dry soups are indicated in table 67. There is expected to be a steady increase in consumption throughout the year, except that the rate of increase during the summer months will be less than later in the year.

Table 67 - DRY-MIX AND DEHYDRATED SOUPS: 1944-45 PER C.PIT. and AGGREGATE CIVILIAN REQUIREMENTS by Quarters

Item	1944-45 Civilian Requirements 1/					
	Aggregate					
	Per	Total	July-	October-	January-	April-
	Capita		Sept.:	Dec.	March	June
	1	2	3	4	5	6
-----Millions of Pounds (Processed Weight)-----						
Dry-Mix Soups						
(a) predominating in cereals 2/	.78	100.0	20.0	27.0	26.0	25.0
(b) predominating in legumes 3/	.19	25.0	5.0	6.8	7.0	6.2
(c) predominating in vegetables	.12	16.0	3.2	4.3	4.5	4.0
Dehydrated Soup 4/	.03	4.0	.8	1.1	1.1	1.0
All Other (mushroom, dried stew, etc.)	.04	5.0	1.0	1.3	1.4	1.3
Total	1.16	150.0	30.0	40.5	42.0	37.5

1/ Year beginning July 1.

2/ Principally chicken noodle soup.

3/ Principally beans, peas, and soybeans.

4/ Condensed from fresh vegetables and other types of soups.

# COFFEE, TEA, AND COCOA

(Prepared by Isabelle M. Kelley)

## Summary

Coffee, tea, and cocoa are important in our food supply largely from the point of view of morale. After short supplies of coffee in 1942 and 1943, civilians have been assured by the government that there will be sufficiently large supplies available so that rationing will not be necessary. In the case of tea and cocoa the distribution controls currently imposed by War Food Orders have resulted in reasonably equitable distribution without resort to consumer rationing. The requirement for coffee for the year beginning July 1, 1944 is placed at the level necessary to meet unrestricted civilian demand, equal to the per capita rate at which coffee has been allocated to civilians since October 1943. The requirements for tea and cocoa are placed at the level required to continue the current levels of permitted use under WFO 13 and 25 respectively.

## Significance to the Food Supply

Coffee and tea make no contribution to the nutritional adequacy of the civilian diet with the possible exception of niacin in coffee; any nutritive value cocoa may have is thought to be negligible. However, these three commodities play a significant role in terms of food habits and have a definite place in the family menu, and hence are highly important from the point of view of national morale.

## Consumption and Demand

Coffee: Consumption of coffee has been rising steadily over the past decade, increasing from 11.9 pounds per capita in 1932 to 15.5 pounds in 1941. Due to short supplies after the United States entered the war and the institution of rationing late in 1942, civilian consumption fell back to 13.4 pounds in that year and to 13.1 pounds in 1943 (Table 68).

Table 68. COFFEE, TEA, COCOA: Civilian PER CAPITA and AGGREGATE ANNUAL CONSUMPTION for Specified Periods, and Estimated DEMAND for 1944-45

Item	Apparent Civilian Consumption					Estimated
	1932	1935-39	1941	1942	1943	Civilian
	1	2	3	4	5	Demand
	1944-45					
-----Per Capita (Pounds)-----						
Coffee, green	11.9	14.0	15.5	13.4	13.1	16.2
Tea	0.8	0.7	0.8	0.5	0.5	0.8
Cocoa beans	3.2	4.4	4.8	3.8	3.1	5.1
-----Aggregate (Million Pounds)-----						
Coffee, green	1,436	1,814	2,060	1,777	1,692	2,104
Tea	106	87	104	70	60	105
Cocoa beans	399	569	637	504	404	658



It is estimated that in the year beginning July 1, 1944, the per capita annual demand for coffee in an unrestricted market will be 16.2 pounds. This peak demand is due to two important factors: (1) The reduced supplies of tea and cocoa; and (2) the increase in the number of workers, and more particularly, in the proportion of the national population engaged in industrial activity. These two factors more than offset the loss of a part of our coffee-drinking population to the armed forces. Civilian supplies have been available at the annual rate of 16.2 pounds per capita since October 1943 and the market has readily absorbed this quantity.

Tea: From 1932 through 1941, the annual civilian per capita consumption of tea remained fairly stable, fluctuating around 0.7 and 0.8 of a pound. This dropped considerably to 0.5 pound in 1942 and 1943 because of shortages caused by import restrictions (Table 68). It is estimated that the free market demand during the year beginning July 1944, will be but slightly higher than consumption in pre-war years. This is because of the stability in the size of the tea-drinking population and the lifting of ration restrictions on coffee. Part of this demand, however, is for types of tea not now available in the domestic market. While black tea has been substituted for green or other type teas by many consumers, other consumers have been unwilling to shift their purchases to black tea and have remained out of the tea market pending the return of their favorite teas.

Cocoa: The consumption of cocoa amounted to 3.2 pounds per capita in 1932 but rose to 4.3 pounds in 1941. The sharp drop to 3.8 pounds in 1942 and 3.1 pounds in 1943 was the result of restricted supplies owing to the shipping situation and not because of any slackening in demand (Table 68). Since 1941 the civilian supply of products made with cocoa beans has fallen far short of civilian demand. The inadequacy of the supply relative to unrestricted demand has been most prominent in the case of chocolate confections, the most important use of cocoa beans. The termination of coffee rationing reduced the demand for beverage cocoa; and demand and supply for this use currently appears to be in good balance. Any reduction in the quantity of chocolate available for use in home baking appears to have been almost completely compensated by the decline in the volume of home baking. It is estimated that the civilian demand for products made from cocoa beans would be equivalent to 5.1 pounds of cocoa beans per capita for the year beginning July 1, 1944. This record demand reflects primarily the sharp increases in the demand for chocolate confections, the latter being very responsive to the level of consumer income.

#### Problems of Distributing a Short Supply

Coffee: Short supplies of coffee may be distributed equitably under rationing procedure that is not administratively cumbersome, despite large variations in consumption among individuals. Although the

coffee rationing program has been discontinued and the public has been assured that there will be adequate coffee supplies, it would be possible to reinstitute rationing if a shipping emergency developed.

Tea: It is possible to achieve a reasonably equitable distribution of a short supply of black tea without resort to rationing at the consumer level. The distribution of tea under WFO 18 has been achieved with a minimum of hardship even at a time when coffee and cocoa were very short and tea supplies were no more than 50 percent of normal.

Cocoa: Restrictions on the grindings of a short supply of cocoa beans has resulted in a reasonably equitable distribution without resort to the rationing of the end products. Shortages of chocolate candy have been constant but appear to have no serious morale repercussions. The industry has managed to keep somewhat adequate supplies flowing to war plants and the general public appears to be fairly well supplied. Shortages in beverage cocoa and baking chocolate eased during 1943 due to larger supplies of coffee and tea and to a reduction in home-baking.

#### Determination of Requirements

Coffee: The civilian requirement for coffee is placed at the level which will satisfy civilian demand in an unrestricted market. Although a smaller amount could be rationed and distribution could be reasonably equitable, federal agencies concerned with coffee supplies have repeatedly guaranteed civilians supplies sufficient to meet all demand. In view of these guarantees it is believed necessary to place the requirement for the year beginning July 1, 1944 at 16.2 pounds per capita, green basis, or a total of 2,104 million pounds. The requirement by quarters, shown in Table 69, is based on quarterly pattern of coffee movements indicated by industry reports compiled by the War Production Board prior to the institution of coffee rationing.

Tea: The civilian requirement for black tea is placed at 76.5 million pounds for the year beginning July 1, 1944. This quantity is sufficient to continue the present level of permitted packing and receiving under WFO 18.3. While the order permits but 75 percent of the base period (1941) use, it will allow approximately normal supplies of black tea, as the 1941 disappearance was substantially above that in other recent years. This quantity will satisfy a substantial proportion of the current demand for black tea. Demand for green and other type tea will remain unsatisfied. The requirement by quarters, as shown in Table 69, is designed to cover the quarterly quota demands for delivery of tea to packers. It does not correspond to the pattern of actual consumption.

Cocoa: The civilian requirement for cocoa during the fiscal year beginning July 1, 1944 is placed at 508.4 million pounds. This will allow continuance of the current level of permitted use under WFO 25, which is 80 percent of 1941 use. Although this level of supply will fall far short of filling civilian demand for chocolate confections,

it appears that labor shortages will limit the processing of cocoa beans for civilian consumption to a point substantially below the amount necessary to satisfy demand. This requirement should insure a reasonably equitable distribution of beverage cocoa and baking chocolate and a fairly satisfactory distribution of chocolate confections.

The requirement for cocoa beans by quarters is shown in Table 69. This distribution shows less variation between quarters than is normally experienced. However, under the terms of WFO 25 some industrial users have been allowed to adjust their quarterly quotas to eliminate marked variations from quarter to quarter so that their reduced labor force may be used more effectively. The quarterly distribution submitted was suggested by the Special Commodities Branch, which administers the cocoa order.

Table 69. COFFEE, TEA, COCOA: Civilian PER CAPITA and AGGREGATE ANNUAL REQUIREMENTS, for 1944-45, By Quarters

Item	1944-45 Civilian Requirement					
	Aggregate					
	Per	Total	July-	Oct.-	Jan-	April-
	Capita		Sept.	Dec.	Mar.	June
	1	2	3	4	5	6
	Pounds					
Coffee, green	16.2	2,104.0	467.5	587.0	559.5	490.0
Tea, black	0.6	76.5	15.30	15.30	22.95	22.95
Cocoa beans	3.9	503.4	121.0	134.2	126.1	127.1



## SPICES

(Prepared by Isabelle M. Kelley)

### Summary

Spices not only give palatability and flavor to foods, but they have important industrial uses in the processing and preserving of food. The spices covered by this requirement cannot be grown commercially in the United States, so our supplies are entirely dependent upon imports. In 1942 imports of spices were sharply curtailed or completely eliminated and civilian use controlled by a conservation order. The supply situation improved for many spices in 1943 and the restrictions on use by civilians were relaxed. The requirement for the year beginning July 1, 1944 requests maintenance of the rate of use currently permitted under WFO 19.

### Significance to the Food Supply

Spices, particularly those most commonly used, give flavor and palatability to otherwise mild foods of monotonous flavor. Since our diet may be based upon fewer foods and more cereals than heretofore, it is important to supply sufficient spices to produce taste appeal in these dishes. Equally important are the essential industrial uses of spices in the processing and preserving of our food supply, such as in meat packing, canning and pickling, and in the baking industry.

### Consumption and Demand

The normal annual aggregate consumption of the various spices is as follows:

	<u>Thousand Pounds</u>
Pepper (black and white)	32,000
Pimento	1,300
Cinnamon and cassia	10,200
Cloves	3,000
Ginger	3,000
Mace	850
Nutmeg	4,500

In 1941 the consumption of these spices generally was higher than normal, but in 1942 the reduction in imports and restricted use under the conservation order reduced civilian supplies below pre-war levels. In 1943 the consumption of spices such as mace, pimento, and cloves increased as the flow of imports improved. In early 1944 it was possible to remove all restrictions on the use of pimento and cloves. The distribution of pepper has been reduced sharply as compared with pre-war levels as efforts were made to stretch our stockpile of pepper since no imports will be available until after

the close of the war in the Pacific. The demand for spices in the year beginning July 1, 1944 is above the level of normal pre-war consumption. The increased demand comes primarily from industrial users, such as meat packers, canners, and bakers. The increase in home preservation of foods and the need to increase the palatability of a diet having fewer choice meat cuts and more cereal products has also stimulated the demand for spices.

#### Problems of Distributing a Short Supply

It has been found possible under WFO 19 to achieve a reasonably equitable distribution of a quantity of spices insufficient to meet total demands. There is as yet no evidence of a shortage of spices for the householder, but industrial users are now receiving what must be considered as minimum amounts. Thus, if any real reduction is made from the level of the supply currently available, without maintaining current supplies to industrial users, there would be serious repercussions upon our civilian food program.

#### Determination of Requirements

In view of the reasonably equitable distribution maintained under WFO 19, the civilian requirement for spices under the order is placed at the level necessary to continue the current permitted use (Table 70). It must be emphasized that these requirements represent the minimum acceptable amounts rather than the actual current demand for spices by the civilian population, which is estimated to be somewhat above pre-war consumption levels. The requirements for pimento and cloves is placed at the level necessary to continue unrestricted distribution.

Table 70. SPICES: Civilian AGGREGATE ANNUAL REQUIREMENTS for 1944-45

Item	1944-45 Civilian Requirement	
	:	Aggregate
	:	Thousand Pounds
Pepper (black and white)		14,000
Pimento		2,400
Cinnamon and cassia		3,329
Cloves		5,000
Ginger		3,700
Mace		653
Nutmeg		3,800

## YEAST FOR FOOD USES

(Prepared by Isabelle M. Kelley)

### Summary

The civilian requirement for active yeast is placed at a level which will provide adequate quantities of yeast for use as a leavening agent in bread and other yeast-dough products. No specific requirement for the dry active yeast of the type under allocation (grown on molasses) is requested since the total production of dry active yeast of the yeast-cereal type (not under allocation) is available for civilians. However, it is requested that there be released to civilians any quantity of dry active yeast grown on molasses that is available after meeting the needs of those claimants who cannot use compressed yeast. An increase in the quantity of nutritional yeast for civilians is requested following the National Research Council's recommendation that its use in civilian foods be encouraged.

### Significance to the Food Supply

Adequate quantities of dry or compressed active yeast are essential to the national food program since the program is built around unlimited consumption of cereal products. Active yeast is used as a leavening agent for bread and other yeast-dough products and any shortage of yeast for this purpose could not be tolerated. Significant quantities of the B-vitamins, particularly riboflavin, can be added to the diet by the incorporation of nutritional yeast in such foods as dry soups. This use may prove to be of increasing importance in improving the vitamin content of low-cost diets. The small quantity of nutritional yeast now used in food fortification does not yet affect significantly the overall adequacy of the civilian diet. However, new food uses of nutritional yeast are being explored continually and insufficient supplies should not be the limiting factor in encouraging the increased use of nutritional yeast for food fortification purposes.

### Consumption and Demand

In prewar years it is estimated that the baking industry used between 180 and 200 million pounds of compressed yeast annually and that household sales were in the neighborhood of 20 million pounds. In addition, the domestic market absorbed between one and two million pounds of dry active yeast, including both compressed yeast in dry form and yeast-cereal products. During 1943, estimates indicate that close to 220 million pounds of compressed active yeast was used by the baking industry and in home baking. Until November 1943 the only dry active yeast available to civilians was the yeast-cereal type. During November and December 1943 small quantities of dry active yeast (grown on molasses) were released to civilians.



It is estimated that the demand for compressed yeast for use in the home and by the baking industry will total 220 million pounds in the year beginning July 1, 1944. This demand is based on the continuance of at least the present rate of consumption of bread and other yeast dough products. Increased production of bread and other yeast dough products does not call for a comparable increase in yeast use, as the same quantity of yeast may be used in leavening larger quantities of dough when production increases. The demand for dry active yeast appears to be relatively stable and would fall between 1.5 and 2.0 million pounds for the year beginning July 1, 1944. This yeast is used by people who do not have access to regular supplies of compressed yeast. Since regular dry active yeast and the yeast-cereal products tend to be highly substitutable for one another, increases in the supply of one type should result in a decreased demand for the other.

Data as to the consumption of nutritional (dried inactive) yeast in foods are not available prior to 1942. In 1942, it is estimated that 950,000 pounds of nutritional yeast were used in foods. The main uses are as a vitamin carrier and as a flavoring agent. The addition of nutritional yeast to dehydrated soups and stews will fortify these products with the B-vitamins and will improve their flavor. In its tasteless form nutritional yeast is added to baby foods and sandwich spreads to fortify their vitamin value; and smoked brewers yeast, which has a bacon-like flavor, is used in powdered form for food fortifications and for seasoning both in food manufacturing plants and in the home. In 1943 the food use of nutritional yeast increased to an estimated 1.6 million pounds, under the impact of the publicity given to it as a substitute for other foods in short supply.

The demand for nutritional yeast for food uses in the year beginning July 1944 will continue to reflect the trend toward higher consumption, especially with the prospective increase in the civilian supplies of dehydrated soups and stews. It is estimated that the civilian demand will be approximately 2.0 million pounds.

#### Problems of Distributing a Short Supply

A shortage in the civilian supplies of active yeast for use as a leavening agent would have serious repercussions on the national food program. With the importance cereal products have assumed in the civilian diet, any shortage or maldistribution of active yeast cannot be tolerated. It will be necessary to satisfy the unrestricted civilian demand for compressed yeast because its perishability precludes any type of controlled distribution. Supplies of dry active yeast of both the type grown on molasses and the yeast-cereal type also should be adequate to fill unrestricted demand because its use is limited to such a small proportion of the population no controlled distribution scheme is feasible.

It is desirable to provide supplies of nutritional yeast in close relation to demand. This recommendation is strictly on the basis that its use as a source of vitamins in low-cost diets has many advantages and developments in this sphere should not be limited by inadequate supplies.

#### Determination of Requirements

The civilian requirement for compressed yeast is placed at 220 million pounds for the year beginning July 1, 1944, as shown in Table 71. This is sufficient to meet all demands for yeast by the baking industry and for home use. This quantity is necessary to insure the continued consumption of cereal products by providing adequate supplies of leavening agents.

Residual treatment is requested in the allocation of the type of dry active yeast under allocation. The total production of yeast-cereal products is available to civilians and appears to be supplying a large percentage of the needs for dry active yeast. In the light of this, and because requests of other claimants cannot be filled by substituting compressed yeast, no fixed requirement is established for dry active yeast under allocation. It is requested, however, that supplies of dry active yeast be released to civilians when the production exceeds essential non-civilian requirements.

The civilian requirement for nutritional yeast for food uses is placed at 2 million pounds, allowing 25 percent increase over the quantity available to civilians in 1943. This requirement, by requesting that increased quantities be made available in order to encourage its use in foods, follows the National Research Council's recommendation.

Table 71. YEAST FOR FOOD USE: Civilian AGGREGATE ANNUAL REQUIREMENT for 1944-45

Item	1944-45 Civilian Requirement
	Aggregate
Million Pounds	
Compressed yeast	220.0
Dry active	<u>1/</u>
Nutritional	2.0

1/ Will accept residual supply.

## PECTIN FOR FOOD USES

(Prepared by Isabelle M. Kelley)

### Summary

Pectin is an essential ingredient in the production of preserves and an adequate supply must be available in view of the program of the War Food Administration requesting increased supplies of preserves for civilian use. For the year beginning July 1, 1943 civilians were allocated 3,400,000 pounds of pectin and this supply has not been fully adequate to meet needs since for the past few months preservers have been experiencing difficulty in securing pectin in the quantity needed. It is estimated that civilians will require 3,925,000 pounds of pectin for food use in the year beginning July 1, 1944 to insure a reasonably equitable distribution of pectin supplies and the civilian requirement has been placed at this level.

### Significance to the Food Supply

Pectin is an essential ingredient in commercially-produced preserves, in many home-produced preserves, and in products such as salad dressings and many types of confections. Adequate supplies of pectin for food use for civilians must be available, especially in view of the program of the War Food Administration that requests increased quantities of preserves for civilians.

### Consumption and Demand

Based on data from the Census of Manufacturers, use of pectin in 1939 was 2,800,000 pounds. In 1941 and 1942 civilian supplies were estimated at approximately 3,200,000 pounds and for the year beginning July 1943 civilians were allocated 3,400,000 pounds of pectin. This increased use reflects primarily the increase in the production of preserves since 1939.

It is estimated that a supply totaling 3,925,000 pounds for food use in the year beginning July 1, 1944 would result in reasonably equitable distribution among the various users. This will be sufficient to provide for the civilian requirement for commercially-produced preserves, to allow for an increase in the demand for pectin for use in home-produced preserves and to provide adequate quantities of pectin for uses other than in preserves.

### Problems of Distributing a Short Supply

It does not appear to be possible to distribute equitably a short supply of pectin without resort to some method of controlled distribution. Production of commercial preserves in the year beginning July 1943 at a level higher than anticipated has placed a great strain on civilian supplies of pectin. Despite voluntary efforts to distribute pectin equitably, many preservers found inadequate supplies of pectin were limiting production while other preservers were adequately supplied.



Many preservers have found it necessary to stretch their supplies of pectin by producing a much thinner preserve than the civilian trade is accustomed to using. With anticipated increases in home production of preserves in 1944-45 because of better fruit crops, unless civilian supplies are in close relation to demand it will be necessary to control distribution to guarantee that the needs of commercial and home producers of preserves can be met in full.

#### Determination of Requirement

The requirement is based upon the need to provide reasonably equitable distribution of the supply and to prevent inadequate supplies of pectin from limiting the production of preserves. It appears that the total domestic production of pectin is adequate to supply civilians with this quantity. With this in view and mindful of the practical difficulties of controlled distribution, the requirement is placed at the demand level.

The civilian requirement for pectin for food use for the year beginning July 1, 1944 is 3,925,000 pounds. The estimated distribution of this requirement among the various users is shown in Table 72.

Table 72. -- PECTIN FOR FOOD USE: Civilian AGGREGATE ANNUAL REQUIREMENTS for 1944-45

Item	:	1944-45 Civilian Requirement
	:	Aggregate
Thousand Pounds		
Commercial preserves		2,175
Household use		1,250
Other, excluding pharmacy		500
Total		3,925

FERMENTED AND DISTILLED VINEGAR  
(Prepared by Oscar R. LeBeau  
and William R. Whitacre)

Summary

Vinegar is important as a preservative and as a flavoring. Large amounts are used for home canning and for table purposes while in addition vast quantities are utilized each year in the production of pickles, catsup and other commercially processed foods.

Most of the vinegar used in this country is either cider vinegar made from apples or white distilled vinegar made from alcohol, molasses or grain. Demand for both types has been at least 10 percent higher than normal during 1943-44, due to increased quantities required for home canning and for the manufacture of processed foods. At the same time, cider vinegar production in 1943-44 has been the lowest in many years, while distilled vinegar production has been subject to wartime restrictions on alcohol and molasses. This has tended to deplete the usually large stocks of vinegar with the result that inventories in late 1943 were reported to be the lowest in 25 years.

The total civilian requirement for vinegar in 1944-45 has been set at the same level as the requested civilian allocation for 1943-44. However, it is anticipated that a larger share of the requirement will be supplied from cider vinegar than was possible in 1943-44 under the short apple crop.

Significance of Vinegar to the Food Supply

Vinegar is significant principally for its food preserving and flavoring qualities. Large quantities of both fermented and distilled vinegar are required annually by industrial users and housewives for the preservation of such foods as vegetables, meats, and fish. The pickle industry alone uses at least 10 million gallons of 100-grain distilled vinegar annually. Large quantities are used also in the manufacture of catsup, salad dressing, and other processed foods.

Vinegar also is in demand as a flavoring agent and as such it makes possible greater variety in meal preparation. It is an aid also in utilizing left-overs and hence contributes to food conservation.

Farm and village families use larger quantities of vinegar than do urban families, owing principally to the greater volume of home preservation of foods by farm families. In general, cider vinegar is the type most often purchased for home use, except in the South where some 40-grain white distilled vinegar is used.

Consumption and Demand

Historical data concerning the annual production and disappearance of vinegar are incomplete. However, it is possible to make a general estimate of the civilian consumption for recent years from information

Table 73—FERMENTED and DISTILLED VINEGAR: Civilian PER CAPITA and AGGREGATE ANNUAL CONSUMPTION for Specified Years, and Estimated DEMAND for 1944-45 1/

Item	:Estimated: Apparent Per Capita :Estimated					
	:Average : Consumption 2/ :Per Capita					
	:Strength :1940-41: 41-42 :42-43 :43-44/3:Demand 44-45					
	: 1	2	3	4	5	6
	Grains <u>4/</u>	- - - -	-Per Capita (Pounds)	<u>5/</u>	- - - -	-
Cider Vinegar	50	4.0	3.9	3.7	2.4	4.0
Wine Vinegar	50	<u>6/</u>	<u>6/</u>	<u>6/</u>	<u>6/</u>	<u>6/</u>
Distilled Vinegar	<u>100</u>	3.2	3.0	3.6	4.4	4.0
Total Equivalent <u>7/</u>	50	10.4	9.9	10.9	11.2	12.0
- - -Aggregate (Millions of Gallons)- - -						
Cider Vinegar	50	60.9	59.9	56.8	35.0	60.0
Wine Vinegar	50	.2	.2	.2	.2	.2
Distilled Vinegar	<u>100</u>	50.0	46.7	54.7	67.2	61.4
Total Equivalent <u>8/</u>	50	161.1	153.5	166.4	169.6	183.0

1/ Year beginning October 1.

2/ Based on information obtained from the trade, the Bureau of the Census, the Bureau of Internal Revenue, and the War Production Board.

3/ Preliminary estimate.

4/ Fifty-grain vinegar is that which contains 5 percent acetic acid or 5 grains per 100 cubic centimeters at 20°C.

5/ Computed on the basis of 8.5 pounds per gallon.

6/ Less than .05 pound.

7/ Derived by counting one pound of 100-grain distilled vinegar as equivalent to two pounds of 50-grain cider vinegar.

8/ Derived by counting one gallon of 100-grain distilled vinegar as equivalent to two gallons of 50-grain cider vinegar.



submitted by the trade, from data contained in the 1939 United States Census of Manufacturers, and unpublished reports of the War Production Board and the Bureau of Internal Revenue. Data from these sources substantiate the following estimates of consumption and demand. (Table 73).

In discussing vinegar consumption and demand, it is important to treat (a) cider vinegar, (b) wine vinegar, and (c) distilled vinegar, separately. Fruit vinegars have an average potency of about 50-grains and undiluted distilled vinegar is usually reported in terms of 100-grain strength.

#### Cider Vinegar

The 1939 Census of Manufacturers and information from the trade indicate that the average annual pre-war consumption of commercially produced cider vinegar approximated 60 million gallons of 50-grain strength. (Table 73). An indeterminate additional quantity of home-made vinegar is produced and consumed in millions of rural homes.

The production of commercial cider vinegar has declined slightly during recent years due principally to the favorable demand for fresh apples, fresh cider, apple juice, and other apple products. However, the civilian demand for apple-flavored vinegar has not diminished proportionately. In fact, some trade estimates indicate that cider vinegar sales during the summer of 1943 were nearly 50 percent higher than for the preceding summer, due mainly to the larger quantities desired for home canning.

Altogether, it is reasonable to assume that the civilian market would absorb approximately 60 million gallons of cider vinegar (4 pounds per capita) during 1944-45 if it were available.

#### Wine Vinegar

Wine has never been an important source of vinegar in the United States, 205,000 gallons in 1942-43 being the highest production reported to the Bureau of Internal Revenue in any one year. Because other grape products offer higher returns, the production of wine vinegar—a product generally made only from "diseased" wine—will probably continue to be negligible.

#### White Distilled Vinegar

The higher concentration of 100-grain distilled vinegar makes it a more potent preservative and enables it to be stored and transported more economically than 50-grain cider vinegar. Production of this type of vinegar has been limited since the beginning of the war by the quantities of alcohol, grain, and molasses available for this purpose. WPB Conservation Orders M-30 and M-54 initially restricted the use of alcohol and

molasses, respectively, for vinegar production to 110 percent of the base year (1940-41) usage. To compensate partially for the shortage of cider vinegar, Order M-30 was amended October 23, 1943 to permit 130 percent of the base-year usage of molasses for vinegar production, and increased quantities of alcohol are available upon special application by alcohol-using vinegar plants. Grain use is not restricted by Government, but supplies are stringent.

Civilian consumption of white distilled vinegar approximated 50 million 100-grain gallons during the base year 1940-41. The demand for this type of vinegar has fluctuated in accordance with the needs of food industries and the supply of cider vinegar available. Because of the large quantities of distilled vinegar utilized in the production of such products as catsup, salad dressing, and pickles, of which the military services require large amounts, it is difficult to estimate accurately the annual civilian consumption.

However, governmental and trade statistics indicate that approximately 54.7 million gallons of 100-grain distilled vinegar entered civilian channels in 1942-43. Planned production in 1943-44 was aimed at supplying about 67.2 million gallons of distilled vinegar because of the general shortage of cider vinegar. In view of the expected improvement in the cider vinegar supplies in 1944-45, the tentative estimate of demand for distilled vinegar in 1944-45 is placed at 61.4 million gallons of 100-grain strength.

Normally, most of the distilled vinegar produced is used for industrial food purposes and much of it is never diluted. However, to facilitate comparison and to permit totalling it is helpful to consider the respective quantities of all vinegars in terms of equivalent 50-grain gallons. Computed in this manner, civilians consumed the equivalent of about 161 million gallons of 50-grain vinegar in 1940-41, about 154 million in 1941-42, and 166 million in 1942-43, compared with an estimated overall demand of 183 million gallons for 1944-45. (Table 73).

This meant an average per capita consumption in 1942-43 of about 3.7 pounds of cider vinegar and 3.6 pounds of full-strength distilled vinegar, most of the latter being consumed indirectly in processed foods. (Table 73).

#### Problems of Distributing a Short Supply

Cider vinegar is produced commercially in this country by approximately one hundred firms. In addition, each of the thousands of custom cider mills and small domestic cider presses is a potential source of vinegar for many families. Thus, it would be difficult to apply rationing successfully to distribute a short supply. Distilled vinegar could be rationed much more readily since the number of distilled vinegar plants is relatively limited and the output is utilized principally by food processors and distributors.

If distilled vinegar can be substituted for cider vinegar to a sufficient extent to compensate for short supplies of the latter, it is believed that greater food conservation would be achieved by a continuation of voluntary rationing on the part of the industry than by governmental rationing.

#### Determination of Requirements

In view of the importance of vinegar in the preservation and flavoring of foods, and the difficulties of procuring an equitable distribution of a short supply, it is believed that an effort should be made to produce a reasonably adequate supply of vinegar. Thus with an estimated total demand for vinegar equivalent to 183.0 million gallons of 50-grain potency, the civilian requirement for 1944-45 has been set at 169.6 million, or 92.7 percent of the demand. (Table 74).

Table 74--FERMENTED AND DISTILLED VINEGAR: Civilian PER CAPITA and AGGREGATE ANNUAL REQUIREMENTS for 1944-45 1/

Item	: Estimated	:	1944-45 Civilian Requirement	
	: Average	:		
	: Strength	:	Pounds Per	Aggregate Millions
	: (Grains) <u>2/</u>	:	Capita	of Gallons
Cider Vinegar	50		3.2	48.0
Wine Vinegar	50		<u>3/</u>	.2
Distilled Vinegar	100		4.0	60.7
Total Equivalent <u>4/</u>	50		11.2	169.6

1/ Year beginning October 1.

2/ Fifty-grain vinegar is that which contains 5 percent acetic acid or 5 grains per 100 cubic centimeters at 20°C.

3/ Less than .05 pound..

4/ Derived by counting one gallon of 100-grain distilled vinegar as equivalent to two gallons of 50-grain cider vinegar.

It is calculated that with a reasonable degree of economy and with the continuation of voluntary rationing by the industry, this should provide a sufficient supply to meet most civilian needs.



### Cider Vinegar

The civilian requirement for cider vinegar--the type most commonly used for home preservation and table use--is placed at 48 million gallons (50-grain strength) or at 80 percent of the estimated 1944-45 demand of 60 million gallons. This is more than was available during 1943-44, but considerably less than the normal usage during pre-war years when fewer families engaged in home canning. It is the maximum that can be expected for civilians in 1944-45.

### Wine Vinegar

The requirement for wine vinegar is listed as 200,000 gallons--the same as the estimated annual consumption for recent years.

### White Distilled Vinegar

The civilian requirement for white distilled vinegar is dependent on the quantity of cider vinegar available. If civilians procure the 48 million gallons of cider vinegar requested, 60.7 million gallons of distilled vinegar (of 100-grain strength) will be required to fulfil the remaining vinegar needs. Some of this will be needed for meal preparation and table use, but the major part will reach the consumer indirectly through processed foods such as pickles, salad dressing, and catsup. The 1944-45 requirement of 60.7 million gallons of distilled vinegar is 6.0 million higher than the estimated quantity of that type of vinegar consumed by civilians during 1942-43, and 6.5 million lower than the estimated supply for civilians during 1943-44.

The overall requirement is predicated on the assumption that the cider vinegar supply will improve somewhat over that of 1943-44 and that the supply of alcohol, grain and molasses available for distilled vinegar production will continue at approximately the current level.

## BAKING POWDER

(Prepared by Isabelle M. Kelley)

### Summary

Baking powder acts as a leavening agent in the production of quick breads and sweet dessert breads. Current consumption is lower than in previous years because of the decline in home baking, the introduction of self-rising flours, and home sales of biscuit and cake mixes. The civilian requirement for the year beginning July 1, 1944 is placed at a level sufficient to meet unrestricted civilian demand in order to help insure the continued high level of cereal product consumption.

### Significance to the Food Supply

Baking powder is essential to the national food program, as it acts as a chemical leavening agent in making quick breads and sweet dessert breads. Any shortage of baking powder would seriously affect the efforts to maintain the high level of cereal product consumption achieved in 1943.

### Consumption and Demand

The annual consumption of baking powder has been decreasing in recent years. According to trade estimates, civilians were purchasing baking powder at an annual rate of 132,000,000 pounds in 1943. Production of baking powder in 1939 was approximately 140 million pounds, 160 million pounds in 1935, and 170 million pounds in 1931. This decreased use reflects the trend away from home baking that occurred during the 1930's which has been accentuated since 1941 because of the increase in the number of women working outside of the home, family disruptions due to the draft and to migration to war centers and the rationing of sugar and fats. The decrease in the home use of baking powder was not compensated by an increase in the use by commercial bakeries because of the introduction of self-rising flour. As self-rising flour and special cake and biscuit mixes were introduced into the home, the home use of baking powder suffered further decreases. Most, if not all, flour millers are using chemicals manufactured specifically for this purpose, rather than baking powder, to achieve the leavening effect in self-rising flours. It is estimated that the demand for baking powder in the year beginning July 1, 1944 will be approximately equal to the estimated rate of consumption of 132,000,000 pounds in 1943.

### Problems of Distributing a Short Supply

It would be difficult to distribute a short supply of baking powder because of the substantial variation in the need for it among individual consumers, depending upon the amount of baking done in the home. A supply inadequate to meet all demands also would have serious repercussions because of the need for assuring maintenance of the present high

level of consumption of cereal products.

Determination of Requirements

In view of the importance of cereal products in the national food program, the requirement for baking powder is placed at 152 million pounds, the quantity required to meet unrestricted civilian demand. It is imperative that all foods insuring the continued high level of cereal product consumption be provided to civilians in amounts necessary to meet unrestricted demand if no method of distributing a short supply is feasible.



# VITAMINS

(Prepared by Marion B. Matlack)

## Thiamine, Riboflavin, and Niacin

The requirements for the synthetic vitamins, namely, thiamine, riboflavin, and niacin, are based on the amounts needed to enrich white bread, white rolls, and buns, as required by War Food Order No. 1, Amendment 1, and other cereal enrichment consisting of flour and breakfast foods carried out on a voluntary basis. It is estimated that 65 percent of all flour going to civilians is enriched directly or by way of bakery products. Some of our southern States require the enrichment of all white flour sold within their borders. Vitamins for the preparation of the concentrates used by the mills and for the tablets used by bakers for enrichment must be available at all times. Considerable amounts of thiamine and niacin also are used to fortify breakfast cereals, and the practice of enriching corn products such as corn grits and corn meal is increasing. Requirements for the four quarters show a gradual increase during the year because of an expected increase in voluntary enrichment, including the enrichment of all family flour.

Due to the scarcity of riboflavin-containing feedstuffs, a small amount of riboflavin is needed for poultry feed. Without the proper amount of riboflavin in poultry feed, egg production is lowered and hatchability of the eggs is poor. Chicks need riboflavin in order to reach maturity with a minimum consumption of feed per unit of body weight.

On the basis of the needs presented above, the requirements for thiamine, riboflavin, and niacin for civilian food and feed uses, by quarters, for the year July 1, 1944, to June 30, 1945, are shown in table 75.

Table 75.--THIAMINE, RIBOFLAVIN, AND NIACIN: Civilian  
AGGREGATE ANNUAL REQUIREMENT for Food and Feed Enrichment  
for 1944-45, by Quarters

Item	Total	July- Sept.	Oct.- Dec.	Jan.- Mar.	Apr.- June
	1	2	3	4	5
----- (Pounds) -----					
Food enrichment					
Thiamine	82,500	20,000	20,500	21,000	21,000
Riboflavin	49,000	12,000	12,200	12,400	12,400
Niacin	570,000	135,000	140,000	145,000	150,000
Feed enrichment					
Riboflavin	12,000	3,000	3,000	3,000	3,000

# Vitamin A

Vitamin A is used for the fortification of oleomargarine, a group of miscellaneous foods, and poultry feeds.

Due to the shortage of butter, fortification of oleomargarine is more essential than ever before, and it is important that requirements for this purpose be met in full. Standards set up by the Federal Security Agency require that when oleomargarine is fortified it contain a minimum of 9,000 U. S. P. units per pound. In order to allow for processing and storage loss and variability of biological assay, manufacturers report use ranging from 10,000 to 13,500 U. S. P. units per pound of oleomargarine. The requirements are based on providing a sufficient quantity of vitamin A to enable the enrichment of all margarine at an average rate of 11,500 units per pound.

Since War Production Board Allocation Order M-383 was placed in effect new and more accurate information on the amounts of this vitamin used in the enrichment of other foods has become available. Because of the limited supply of vitamin A, our requirements for the enrichment of other foods are based on 75 percent of average 1943 usage.

In order to produce the maximum amount of poultry and eggs with a minimum expenditure of feed, it is necessary that poultry rations be fortified with vitamin A in sufficient quantities to offset any deficiency in the natural constituents of the mixed feeds.

The civilian vitamin A requirement for food and feed enrichment during the year July 1, 1944, to June 30, 1945, is shown in table 76.

Table 76.--VITAMIN A: Civilian AGGREGATE ANNUAL REQUIREMENT  
for Food and Feed Enrichment for 1944-45, by Quarters

Item	: : Total	: : July- : Sept.	: : Oct.- : Dec.	: : Jan.- : Mar.	: : Apr.- : June
	: : 1	: : 2	: : 3	: : 4	: : 5
- - - - - (Billions of U. S. P. units) - - - - -					
Food enrichment					
Margarine	6,555	1,541	1,725	1,736	1,553
Other foods	2,012	503	503	503	503
Total	8,567	2,044	2,228	2,239	2,056
Feed enrichment	40,000	11,000	9,000	9,000	11,000

NUTRITIVE EVALUATION  
(Prepared by Charlotte Chatfield  
and Kathryn A. Morrison)

The 1944-45 civilian requirements for the major food groups (in terms of retail weight) are shown in Table 77 in comparison with estimated supplies during earlier years. On the whole, they are similar to those of the 1943 civilian supply.

The nutritive values based upon the requirements for 1944-45 do not indicate any actual deficiencies in terms of average per capita calculations. If these requirements were realized, the average civilian diet as shown in Table 78 would be sufficient in calories, protein, iron, and vitamin A, but with little margin above the National Research Council's recommended daily allowances in the B vitamins and ascorbic acid (vitamin C). Riboflavin and niacin (of the B-vitamin group), reach the daily allowances only through the higher level of enrichment of white flour and bread which became effective in October 1943. The effects of this higher level of enrichment are shown in Table 79 which gives percentages of nutrients supplied by the 11 major food groups. This table indicates that higher proportions of the B-vitamin group will be furnished by grains and cereals in 1944-45 than in 1943.

Although the average per capita calculations do not indicate any actual deficiencies, they do not assure the margin of safety necessary to cover all segments of the population and all seasons of the year. The number who will get a satisfactory diet will depend, of course, on success in achieving equitable distribution, and on the degree to which individuals and families adapt themselves to wartime shortages and shifts in local supply. Moreover, the evaluation is based on the realization of the 1944-45 requirements. The shifting of claims, which is necessary in the allocation procedure, might bring about substantial changes in the evaluation.

In making the nutritive evaluations, rough estimates of cooking losses have been made in the case of thiamine, riboflavin, niacin, and ascorbic acid. For this, it was necessary to make assumptions concerning losses that are sustained in the kitchens of homes and restaurants. Cooking loss estimates are based on very meager information, and the ones applied probably are conservative in that they correspond to average or better than average kitchen practice. Very likely, the estimates of the quantities of these nutrients retained are too high. For other nutrients, the estimates are on the basis of the quantities before cooking.



Another shortcoming in the estimates is the fact that they are uncorrected for waste of edible material after it enters the home. It is known that such waste may be considerable, but no basis for expressing it in quantitative terms has been established authoritatively. Various claims have set the percentages for such losses at 7 per cent and higher. Thus, a further deduction from the estimates of the per capita supply of nutrients properly should be made.

These limitations are pointed out in order to make it very clear that the civilian food requirements here presented have been based on a realistic appraisal of many interrelated and complex factors. Their net effect must be considered if sufficient food is to be allocated to civilians to assure good health and high productive effort.

Table 77.- Estimated PER CAPITA CIVILIAN SUPPLIES OF THE MAJOR FOOD GROUPS  
for Specified Periods, and REQUIREMENTS for 1944-45

Year	Milk Equivalent 1/	Pota- toes Sweet- pota- toes	Dry Beans Peas & Nuts	Tomato- es and Citrus Fruits	L G Y Vege- tables	Other Vege- tables and Fruits	Eggs	Meat Poultry & Fish 2/	Grains	Fats & Oils 3/	Sugars Sirups Pre- serves
1932	419	142	11.9	65	83	157	37	4/	208	71	103
1935-39	437	128	14.2	84	90	212	35	132	198	68	105
1941	468	121	14.4	99	92	225	37	147	195	75	113
1942	490	118	16.5	99	106	207	37	146	199	70	103
1943	507	137	18.1	98	104	183	41	150	205	72	94
1944-45	512	138	21.6	103	108	202	41	147	210	65	94

1/ Milk-solids-not-fat equivalent basis; excludes butter.

2/ Excludes bacon and salt pork.

3/ Includes butter, bacon, and salt pork.

4/ No estimate for fish available; total for meat and poultry is 125 pounds.

Table 78.- Estimated NUTRITIVE VALUE OF CIVILIAN FOOD SUPPLY for Specified Periods,  
and REQUIREMENTS for 1944-45 <sup>1/</sup>

	Energy Value Calories	Pro- tein gm	Fat gm	Carbo- hydrate gm	Cal- cium mg	Phos- phorus mg	Iron mg	Vita- min A I.U.	Thia- mine <sup>2/</sup> mg	Rito- flavin <sup>2/</sup> mg	Niacin mg <sup>2/</sup>	Vita- min C <sup>2/</sup> mg
	nutrients per day											
1932	3233	88	134	420	820	1400	12.7	7500	1.33	1.76	12.2	73
1935-39	3209	88	132	419	850	1450	12.8	7800	1.26	1.79	12.0	79
1941	3381	93	144	430	900	1500	13.8	8100	1.48	1.90	13.1	82
1942	3307	94	140	418	950	1600	14.4	8400	1.59	1.97	13.6	85
1943 <sup>3/</sup>	3355	97	144	417	1000	1600	15.5	8900	1.80	2.13	14.8	85
1944-45 <sup>4/</sup>	3317	99	135	426	1000	1650	17.6	8900	1.86	2.39	16.6	91
NRC Daily Allowance <sup>5/</sup>	2800	66	-	-	900	-	12	4700	1.6	2.3	16	70

<sup>1/</sup> No allowance for waste of edible material has been included.

<sup>2/</sup> Rough estimates of cooking losses have been applied for these nutrients.

<sup>3/</sup> If flour and bread were not enriched, the values would be as follows:

iron - 15.5 mg; thiamine - 1.46 mg; riboflavin - 2.06 mg; and niacin - 13.6 mg.

<sup>4/</sup> If flour and bread were not enriched, the values would be as follows:

iron - 15.0 mg; thiamine - 1.5 mg; riboflavin - 2.1 mg; and niacin - 13.7 mg.

<sup>5/</sup> Weighted for composition of the civilian population. These allowances are on an actual intake basis; thus, exclude waste of edible material.



Table 79.- PERCENTAGES OF NUTRIENTS Provided by FOOD GROUPS in the Civilian Food Supply for 1943 and Requirements for 1944-45

Nutrient	Year	Dairy Products	Potatoes Sweet-potatoes	Dry Beans Peas & Nuts	Tomatoes and Citrus Fruits	L G Y Vegetables	Other Vegetables and Fruits	Eggs	Meat Poultry & Fish	Grains 1/	Fats & Oils	Sugars Sirups & Preserves
Energy Value	1943 1944-45	13.1 12.9	3.9 4.0	3.1 3.6	1.1 1.2	1.0 1.1	3.6 4.1	2.1 2.2	10.9 10.3	27.2 23.1	20.7 19.0	13.3 13.5
Protein	1943 1944-45	23.0 22.7	3.0 2.9	5.4 7.1	.9 .9	1.7 1.9	2.2 2.4	6.0 6.0	26.8 25.5	28.6 28.8	2.4 1.8	0 0
Fat	1943 1944-45	17.1 17.5	.2 .2	3.1 3.6	.2 .2	.2 .2	.5 .6	3.5 3.9	20.2 19.8	2.2 2.5	52.8 51.5	0 0
Calcium	1943 1944-45	75.8 74.6	1.7 1.7	2.8 3.8	1.7 1.7	3.6 3.7	4.4 4.7	2.5 2.5	1.7 1.6	4.7 4.7	.4 .4	.7 .6
Iron	1943 1944-45	7.9 7.0	6.7 5.9	10.0 11.6	3.0 2.9	5.6 5.2	6.6 6.5	7.9 7.1	24.8 21.5	24.2 29.7	2.3 1.7	1.0 .9
Vitamin A	1943 1944-45	12.9 12.1	15.3 17.0	2/ .1	6.2 6.7	37.7 34.2	5.0 6.1	5.0 5.1	11.4 11.9	0 0	6.5 6.8	0 0
Thiamine	1943 1944-45	11.5 11.1	5.7 5.6	7.6 9.6	3.5 3.6	2.7 2.8	3.6 4.1	3.4 3.5	21.2 17.3	35.5 38.3	5.3 4.1	0 0
Riboflavin	1943 1944-45	54.6 49.4	2.4 2.2	3.5 3.7	1.6 1.5	2.1 1.9	2.9 3.0	7.9 7.2	14.8 12.9	8.6 16.9	1.4 1.1	.2 .2
Niacin	1943 1944-45	4.1 3.7	9.4 8.4	7.2 6.9	3.1 3.0	2.1 2.0	3.0 3.2	.2 .2	42.2 36.7	24.6 32.9	3.9 2.8	.2 .2
Vitamin C	1943 1944-45	6.6 6.2	14.7 13.9	0 0	38.0 37.0	19.6 20.5	18.7 20.2	0 0	2.4 2.2	0 0	0 0	0 0

1/ The increase in proportion of B-vitamins supplied by grains in 1944-45 is due to the higher level of enrichment which became effective October 1943.

2/ Less than 0.05 of one per cent.